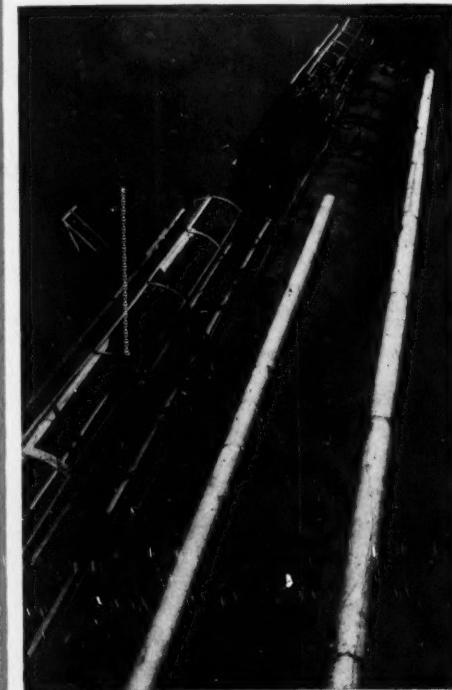


Chemical Week

May 16, 1953

Price 35 cents



► **Personnel Chief Carter:** "People can be a company's top asset, but it takes perception" p. 18

One dollar gets you ten; that's the payoff on G-E's job streamlining setup p. 42

Fielder's choice for insecticide sellers: stay "basic" or "go formulator" p. 57

► **Synthetic surge** sharpens butanol competition, speeds showdown with fermentation p. 76

Slick-dip silver cleaners run into rebuff by "Good Housekeepers," fear pared sales p. 81



Looking for sheep's wool under the sea

THE "WOOL" taken from the ocean bottom is a *sponge*—Keys Sheep's Wool—native to our Florida coast. It's highly prized because it is said to hold more water than any other natural sponge of equal size.

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Chemical Week

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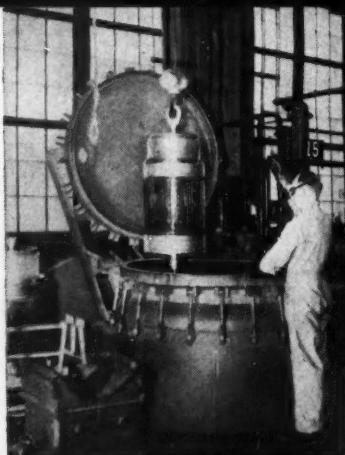
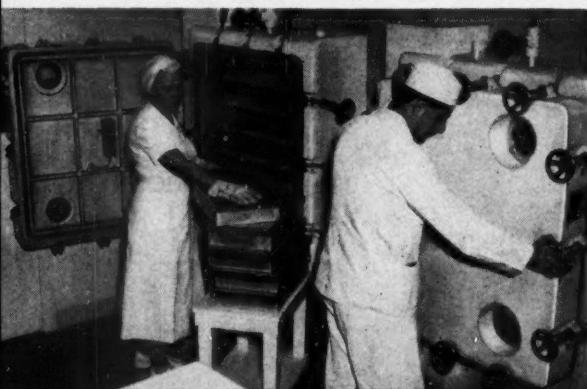


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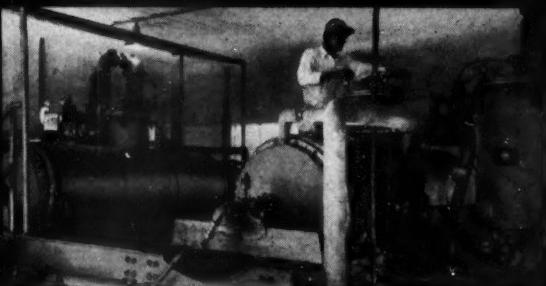
Operator transfers evacuated retort from heating to cooling station of Stokes Vacuum Annealing Furnace, designed and built for the processing, annealing and other heat treatment of titanium, zirconium, hafnium, copper and other metals.



One of the uses for the complete custom-built installation of Stokes vacuum freeze-drying equipment in Pitman-Moore Company's new million-dollar plant at Indianapolis, Ind., is to produce gamma globulin to combat poliomyelitis. One of the steps is drying the material from its frozen state. Operators are shown removing trays of gamma globulin from Stokes freeze-driers. Temperatures are as low as 40° below zero F. during part of the freeze-drying cycle.



Diesel locomotive armature being removed, after impregnation, from Stokes high vacuum impregnating tank in the San Bernardino, Calif., plant of Atchison, Topeka & Santa Fe Railway. Electric motors for the Santa Fe's "Chief" and "Super Chief" develop such excessive heat that ordinary insulation would swell or burst, causing the rotors to "freeze" in the mounting. By impregnating these rotors with protective resins under high vacuum in Stokes' impregnators, each turn of wire is held in place, motors operate without interruption.



Installation of Stokes Rotary Vacuum Dryers used by Metals Disintegrating Co., Berkeley, California, for drying of aluminum powder. Highly oxidizable materials can be handled without any danger of combustion or explosion when they are processed under vacuum.

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OPINION

Stifling Enterprise

To THE PUBLISHER: Congratulations on your very helpful and excellent editorial "For Real Help to Small Business" (May 2).

You have not only highlighted one of the major problems plaguing every small business man, but have also suggested very constructive remedial measures.

Let us hope that the present Congress will have the wisdom to do something about this discriminatory and stifling system of taxation.

SILAS BESTHOFF
Vice-President
Faesy & Besthoff, Inc.
New York, N. Y.

The Mind Political

To THE EDITOR: I am amused at the political mind in general and Alabama State Attorney Garrett in particular with reference to his ban on sales of ice cream substitute "plainly labeled as a substitute" (May 2) . . .

By the same reasoning he should ban the sale of corn meal because it is not wheat flour, and chicken because it is not turkey.

We don't have statesmen like that in Georgia . . .

R. A. PENDERGRAST
Pendergrast Chemical Co.
Atlanta, Ga.

Wholly Unwarranted

To THE EDITOR: Recent actions of Secretary of Commerce Sinclair Weeks are such as to cast doubt on the scientific competence and intellectual honesty of the personnel of the National Bureau of Standards . . . Our Association, which is composed of scientists, disapproves of the action of the Secretary in drawing a technical conclusion as to performance of any commercial product on the reported use by any company or companies . . . of his criticism of the NBS because its conclusions did not concur with his.

. . . It is felt that the request for the resignation of Dr. Astin on such a basis without adequate investigation was wholly unwarranted . . .

Our Association concurs . . . in call-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

ing for a full public investigation of the facts in the "Astin case" as well as the re-evaluation of the objectives and operations of the National Bureau of Standards . . .

FOSTER DEE SNELL
President
Assn. of Consulting Chemists and
Chemical Engineers, Inc.
New York, N. Y.

Facts and Opinion

To THE EDITOR: . . . In spite of the fact that you sometimes rile me with some of your "gloves-off" reporting . . . I have long held your magazine in high regard. Whether anyone agrees with me or not, whether his views are the same as mine or not, is not the main issue . . . when it comes to respect. What I respect is anyone who has views and opinions . . . what I loath is those wishy-washy people (and magazines) who vacillate or always "play it safe" by writing bland, sure-not-to-offend-anyone stuff . . .

And, when it comes to respect, my respect for CW has been greatly increased by your careful and thorough treatment of the battery additive case. . . . Your news article on the additives case (Apr. 25) was, in my opinion, penetrating and fair . . . You discussed both sides of the issue . . . gave the manufacturer credit for all the testimonials he has received . . . also presented the position of the National Bureau of Standards and quotes from a good many other interested parties. . . . I don't think that anyone can say you were anything short of completely fair . . . or that your reporting was colored by opinions . . .

Your editorial on the case (May 2) was also on what seems to me to be the proper plane . . . In it you discussed the issues—the real issues—and not the single aspect of the case on which so many have dwelt—that is, whether or not the product is efficacious . . .

I commend you for thorough, careful and penetrating reporting . . . for so properly distinguishing between facts and opinion . . . and focusing your opinions on the fundamental issues only . . .

ROBERT C. WINSHIP
Chicago, Ill.

Takes Guts to Raise

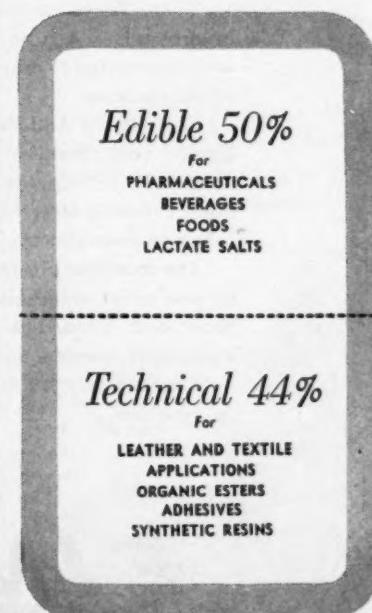
To THE EDITOR: . . . This battery additive business interests me. Battery additives were laughed at years ago and still are. So far as I know, no one has gotten to first base with them . . . and any large user of batteries could,

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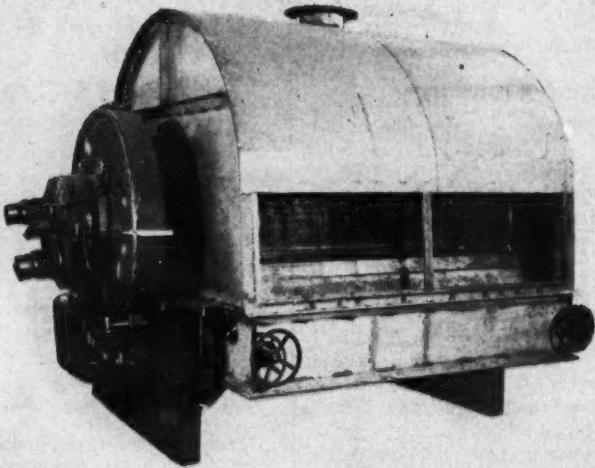
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OPINION

if he desired, buy a few pounds of chemicals, mix them and use them . . . He wouldn't have to pay a premium for a printed box . . .

I'm glad to see that your magazine had guts enough to report the whole story . . . to call the turn . . .

Several years ago I was watching a fair-size poker game at a country club. One of those plunger boys raised the pot, in a table stakes game, by \$200. A friend of mine saw the raise and raised it . . .

He had only threes, but he caught the pot . . . as the other fellow only had aces up, in two pair . . .

It took guts . . . but that's what pays off . . . in poker and in reporting . . .

A. W. WILSON
Louisville, Ky.

On the Course

TO THE EDITOR: CW (Apr. 4, p. 84) re Monsanto's new form of acetophenetidin described as "a course powder"—it's coarse of course!!!

MAURICE G. KRAMER
Wyandotte Chemicals Corp.
Wyandotte, Michigan

Of coarse.—Ed.

If the Shoe Fits . . .

TO THE EDITOR: . . . Every now and again, in my opinion, you almost admit that the chemical industry has a pollution problem . . . In your May 2 issue, for instance, you cite a number of laws that are being drafted or implemented to curb the activities of those companies that persist in letting . . . fumes belch into the air . . . stinking wastes spew into the nation's streams . . .

Perhaps you feel that citing the laws . . . reporting the infractions . . . is tacit admission of what is going on . . . and adequate warning . . . Possibly, however, you could well address yourselves directly to the problem and warn chemical concerns that unless they devote more attention to the problem . . . they will permanently alienate the public and the lawmakers and . . . that will prove to be costly . . . in terms of both dollars and irreparable harm to public relations . . .

I am not arguing or contending that all chemical companies have ignored the problem of pollution . . . for I have read the remarks of the speakers at the Manufacturing Chemists Assn. in Detroit (Mar. 14) . . . but they, perhaps, are the leaders . . . they are aware of the necessity and the dangers of ignoring public sentiment . . .

Nonetheless, there is a good deal of "head-in-the-sand" type of thinking still going on . . . among chemical and



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OPINION . . .

chemical process concerns . . . Those that are negligent of their responsibilities are doing harm to the whole industry . . . We may all be engulfed by the aftermath of their stupidity . . .

Rather recently, I had to make an extensive trip . . . visited quite a few chemical plants, petroleum refineries and paper mills located in several dozen communities. These are some of the things I found:

On entering one rather large plant I noticed a huge stack belching dense, black smoke into the air . . . and it was settling over the neighborhood like a pall. The plant manager told me that there had been a little talk about pollution . . . but that the company was "working on the town council to try to change the ordinances." There was not the slightest suggestion that the problem was recognized or anything constructive was planned . . .

At another location, I talked with the plant superintendent, who mentioned, casually, that they were losing several tons a day of nitric fumes into the atmosphere . . . and that some of the people in town had been annoyed . . . "But," he said, "most of the families in town work here, so what can they do about it?" . . .

In fairness, I think that I should cite some more favorable encounters: In one instance, I was impressed by the concern that one plant management had because people had been complaining that salmon in the stream . . . into which they poured their effluent . . . tasted "chemical." That company was doing a lot of exploring . . . preparing to tackle the problem head-on . . .

But for all the good, sensible work that one company . . . such as that one, is doing . . . too many companies are being selfish and shortsighted.

The day has gone—and it went years and years ago—when the "public-be-damned" sort of thinking could be accepted as rational . . .

The dilatory or irresponsible should be upbraided and educated . . .

SAMUEL C. AIKENS
Los Angeles, Calif.

DATES AHEAD . . .

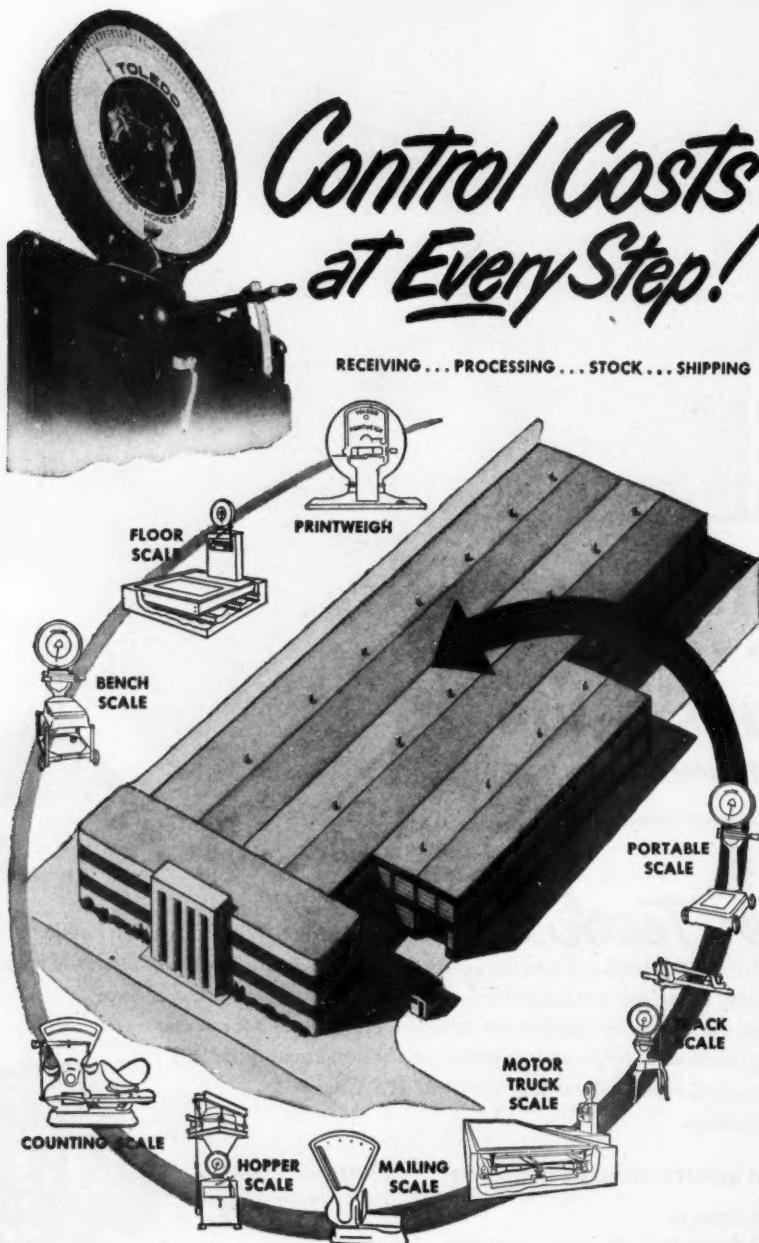
Chemical Specialties Mfrs. Assn., Drake Hotel, Chicago, Ill., May 17-19.

American Society for Quality Control, annual convention, Convention Hall, Philadelphia, Pa., May 27-29.

Institute of Paper Chemistry, 17th annual executives' conference, Appleton, Wis., June 4-5.

Chemical Institute of Canada, annual conference, Windsor, Ont., June 4-6.

Chemical Week • May 16, 1953



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NEWSLETTER

Wool men and synthetic fiber makers dropped their brickbats, gingerly shook hands last week. At a meeting of the National Assn. of Wool Manufacturers, chemical firms' sales representatives assured the sheep's advocates that they were actually partners, not competitors, in the struggle for the consumer's dollar.

Carbide and Carbon's Setterstrom deplored the extravagant term, "miracle fiber," chided fanatics on both sides, and called for a cooperative research program to further the interests of the wool and synthetic industries alike by investigating fundamental textile problems.

Du Pont, Chemstrand and Virginia-Carolina representatives echoed Setterstrom, agreed that each type of fiber has inherent advantages and that blends are often better than 100% wool or 100% synthetics.

Whether this love feast will put a stop to sniping remains to be seen. Says Setterstrom: "Unfortunately, there continue to be some violations of . . . generally accepted principles."

And the battle between natural and synthetic food constituents still goes on. Rep. Miller (R., Neb.) has now introduced H.R. 4901 to control the addition of chemical additives to food. It is similar in scope and intent to his H.R. 4277, which deals with pesticides. Features:

- The bill assumes that a proposed additive is toxic until proved safe. The manufacturer must submit samples, statement of composition, directions for proper use, data proving safety, and a method of analysis.
- The Food and Drug Administrator may call upon an advisory committee to review the evidence.
- The manufacturer—or anyone adversely affected—can appeal the Administrator's ruling to the U. S. district court, and the lower court's ruling is subject to review by the U. S. Supreme Court.

Miller, who was a member of the Delaney committee, has a two-fold purpose: to provide pretesting of proposed additives, and to strip the Administrator of his present power—now a decision can be contested only on the grounds that he acted "arbitrarily and capriciously."

The post-Korean plunge into plant expansions is now followed by an inevitable wake of plant dedications. Hard on the heels of Davison's catalyst plant (CW, May 9):

- Koppers Co.'s ethylbenzene plant at Port Arthur, Tex., the output of which is shipped to Kobuta, Pa., for conversion to styrene. Vice President Dan Rugg promises future growth on the same site.
- American Metallic Chemicals Corp.'s electrolytic manganese dioxide plant at Portland, Ore. Next on the agenda: sodium perborate.
- Celanese Corp.'s hydrocarbon oxidation plant at Pampa, Tex. Its acetic acid and anhydride unit is designed to produce 1.8 million lbs. of acid per week; other products are acetaldehyde, methanol, acetone, propionic and butyric acids, butyl acetate and propyl acetate. The 30-million-lbs./year vinyl acetate unit will start up about June 15.

Trimming the federal budget is easier said than done. The Administration decided to withhold money for operating the Bureau of Mines'

NEWSLETTER

synthetic liquid fuels experimental plants at Morgantown, W. Va., Bruceton, Pa., and Laramie, Wyo., thus saving close to \$2 million.

But it reckoned not the howls of protest, first from John L. Lewis (CW Newsletter, May 2), and now from Bureau of Mines officials and congressmen from West Virginia, Pennsylvania and—surprisingly—Colorado. Their pat argument—it might save the nation in time of war.

And Texas has an easier time raising the budget than finding the money. Having raised teachers' salaries at a cost to the state of \$33 million/year, the legislature then started figuring how it could get the money from natural gas and chemical firms.

The state won a round last week when the supreme court upheld (by refusing to review a lower court's decision) the \$12-million/year tax on natural gas gathering, the opponents of which declared it is an unconstitutional burden on interstate commerce. The protesting firms will ask the state supreme court for a new hearing, may, if it is denied, appeal to the U. S. Supreme Court.

Authors of the tax bill issued a statement calling on the plaintiffs to drop the suit, not on constitutional grounds but "so that the State of Texas can solve its financial problems and give the school teachers of Texas the salary raise to which they are entitled.

The impending sale to private industry of RFC-owned synthetic rubber plants will doubtless steal the limelight in discussions among the 20-nation International Rubber Group at Copenhagen this week, to which the U.S. has sent a 19-man delegation.

Many nations favor a "cartel" to buy natural rubber when the price is low, sell it when the price is high; but the U.S. is opposed to the scheme, says it's unworkable.

Meanwhile, Board Chairman P. W. Litchfield of Goodyear Tire and Rubber outlined a plan to smooth the transition from government to private ownership of synthetic plants:

- Maintain full output during the entire transition period to brake a price increase of natural rubber.
- Build up a 200,000-ton stockpile for security reasons.

A fight is shaping up on the Simpson bill (see p. 13) to increase tariff protection. Since it now appears that the bill can't pass without substantial amendment, its supporters will make some concessions: let the President override the Tariff Commission; modify their doctrinaire definition of "injury" to American industry; effectively postpone basic changes for a year by going along with the Administration's proposal for study of the whole tariff question by a special commission.

Asking price for these concessions: a more "sympathetic" administration of the present law; "packing" of the Tariff Commission to provide a Republican majority; cut action time on industry distress cries.

This week brings two technical developments of more than passing interest:

- DuPont has a new process for making pure silicon, now operating on a pilot scale at Newport, Del. It foresees use (instead of germanium) in transistors and (instead of selenium) in rectifiers.
- Shell Oil is now adding tricresyl phosphate (CW, Oct. 13, '51) to its premium-grade gasoline. Developed first for aviation and touted as a mileage stretcher, the new additive adds $\frac{1}{2}$ ¢ to the gallon price.

. . . The Editors

When a lovely lady takes your eye



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U·S·S COAL CHEMICALS



UNITED STATES STEEL

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These process storage tanks wear a coating of U.S. Rubber Royalguard painted on their insides to protect against abrasion and corrosion—also to prevent their iron interiors from contaminating the silica sand.

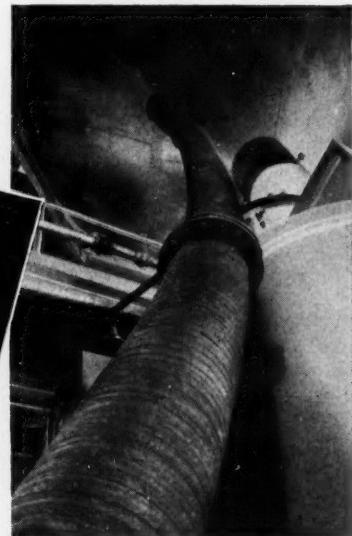


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BUSINESS & INDUSTRY

Tariff Hibernation

Backers of the Simpson bill to raise tariffs have virtually conceded defeat this week. House leaders now expect either to pass no reciprocal trade law this session, or else to patch together some kind of a face-saving compromise for Simpson. One suggestion: Rep. Jenkins (Rep., O.) would "seek an area of compromise that might be satisfactory to all concerned."

Rep. Simpson thinks the chances of getting his bill adopted virtually vanished when Eisenhower cabinet officers, in a long parade, told the House Ways and Means Committee now considering the bill that:

- No further trade agreements are on the docket this year.
- Faster, more lenient attention will be bestowed upon industries complaining of past tariff cuts.
- Any interests seeking tariff relief should seek it under existing administration authority.

The statements were made for the Administration in testimony given by John Foster Dulles, George Humphrey, Sinclair Weeks, and Harold Stassen. All gave formal O.K. to President Eisenhower's proposal for a one-year standstill on changing trade policies—pending study of the overall situation by a proposed Commission.

Their reasoning: Even if the other part of the President's request—a straight one-year extension of the present reciprocal trade law due to expire June 12—is denied, it will have little consequence on U.S. tariff policies "since there's very little room left in the law for further tariff cuts." Major drawback, they concede, is the bad psychological effect extension will have on European countries depending upon an increase in trade with the U.S. to compensate for lost dollar aid.

The Eisenhower plan was revealed after the Ways and Means Committee had spent a full two weeks hearing trade groups' pleas for higher tariffs. Among them: the statement of Cary Wagner, president of the Synthetic Organic Chemical Manufacturers Assn. supporting certain sections of the Simpson bill. Stressing the slogan "Trade-Not Raid," SOCMA under-

scores its stand by an open appeal to all members to read copies of the Simpson bill, Wagner's speech, and to send letters to their own representatives and senators demanding "protection of our economy from unfair competition and damage to large sectors of our basic industry." "We are in danger," submits Wagner, of exposing the organic chemical industry to the perils of low tariffs with the Torquay concessions. If any injury comes to any member of SOCMA as a result of those concessions, a timely and adequate remedy would be available in the Simpson bill."

Pervading opinion in Washington dooms the bill, says that the Reciprocal Trade Act will probably be ex-



SIMPSON: The cabinet won't go along.

tended without serious crippling amendments. But Administration concessions, made in order to steamroller the extension through, may cause trade barriers to creep up somewhat this year.

Secretary Dulles has already spoken out in repudiation of earlier pleas for freer trade voiced by other officials in the State Department. Further, he has added another Republican member to the tariff commission, hints broadly that the Administration may go along with higher tariffs next year.

Meanwhile, protectionists on the Hill are under full steam. Republican members of the House Ways and Means Committee are balking at another Eisenhower proposal—a joint congressional-executive committee to study long-range foreign economic policy. They want the Ways and Means Committee to have the say all to itself.

Carbide's Challenge

Few subjects have been hotter in recent weeks than polyethylene. And a round roster of companies have proudly and plainly proclaimed their intentions (CW Mar. 21) to plunge into the business. But long-time polyethylene maker Bakelite, although not mum, has remained taciturn—never spelled out exactly what it was going to do, or how it would choose to move.

This week Bakelite spoke out, junketed some sixty newspapermen to its Bound Brook labs to dazzle them with demonstrations and, coincidentally, reveal its plans. Net result: a rash of newspaper stories rhapsodizing polyethylene and proclaiming Bakelite's \$100-million, three-plant expansion (Seadrift, Texas; Torrance, Calif.; Texas City).

Here's how the poly picture now shapes up for 1955 (in millions of lbs.):

Bakelite	250
Du Pont	100
Monsanto	66
National Petrochemicals	50
Tennessee Eastman ..	20
Dow	20
Spencer	45

551

One of the significant Bakelite comments was a price projection: By 1957 poly prices may be down in the slightly-less-than-thirty cents range.

Said one plastics competitor last week: "The timing was perfect. That price prediction may scare the plants off a good many companies overwhelmed by poly's lure."

Bakelite is in essence saying: "We're going after the business. Fair warning to all comers."

Upkeep Task: Men's Minds

Only a few chemical companies have pioneered in use of psychiatrists to do "preventive maintenance" on a major asset—employees' mental health—but those companies that have added these specialists to their staffs are convinced that the salary investment is a sound one.

Two of the largest chemical firms—Du Pont and American Cyanamid—have full-time psychiatrists, and others retain such counsellors on a part-time basis. Some companies employ non-medico counsellors who listen to employees' problems and can refer an employee to a practicing psychiatrist if desirable. But the big majority of chemical concerns—like most other manufacturing industries—still hasn't done as much toward protecting employees' mental health as it has toward safeguarding their physical well-being.

Thus this development is still in its embryonic stages, and many companies are reluctant to even talk about the subject. One large firm shuns publicity on its psychiatric program apparently because of a fear that its employees may become branded as frequent victims of "nervous breakdowns." But Du Pont and Cyanamid aren't averse to discussing the work of their industrial psychiatrists.

Concrete Rewards: What a well planned psychiatric program can contribute to a company's operations is more than simply turning scowls of anger into smiles of satisfaction. Its value shows up in very material forms: greater efficiency, fewer accidents, better employee relations.

These are among the findings of the companies that have adopted such programs. People who first joked about having a "dream analyzer" on the payroll now realize that there's a serious need for advice on mental hygiene in every large, highly organized, fast-moving industrial firm. Minds, like machines, have limited capacities and endurance.

While psychiatrists (who also are M.D.'s) are regarded as best qualified to handle mental health programs, some companies have reaped benefits by employing staff psychologists. One firm reports a sharp reduction in accidents at one plant where a psychologist screened all job applicants.

Productivity Factor: Dr. Frederick Dershimer, director of psychiatry in Du Pont's medical department, says the role of the industrial psychiatrist is to increase individual productivity through improved mental health. He says the company benefits through

employees' mental, as well as their physical, fitness.

Most of the employees who consult Dershimer come to him of their own volition, but some are asked by their departmental superiors or by the medical staff to see him.

Most of the worries Dershimer hears about are personal or family problems; a few relate to troubles on the job. Actually, he contends, all



DU PONT'S DERSHIMER: "You don't solve a problem by running away."

mental problems are personal ones, usually stem from the individual's own failure to meet the responsibilities of life, including one's job.

Friction Eradicator: Dr. Walter Woodward, Cyanamid's psychiatrist, says that when he started in this position, employees were hesitant about coming to see him. His only "customers" were those who were sent to him from the medical department. Later on, the employees began to understand and accept the psychiatric service, and now 75% of the people who consult with Woodward come of their own accord. About 5% are referred by their superiors and the other 20% come at the suggestion of the company's medical staff.

Occasionally, Woodward has been able to smooth out friction spots in company organization. If a considerable number of patients come from one particular department, he suggests that the department head look for a possible source of discord. Often the problem is easily solved once it's understood, Woodward says. Sometimes it's simply a case of misunderstanding—an employee may feel that

a transfer is a demotion or that his new duties are unfair. In such cases, the psychiatrist helps to improve company-employee communication.

Why They Worry: If a chemist is happy with his work, you can't always expect him to be content when he's pulled out of his laboratory and promoted into a supervisory job, Woodward warns. Many people prefer to stay with their test tubes, would feel insecure and ill at ease in a loftier capacity. When such a man is placed in a position of responsibility, personnel trouble may develop.

Woodward recommends that more companies devote attention to the problem of helping employees adapt themselves to new roles in the company line-up. One method is the "start-from-the-bottom" system, in which an employee works his way up through various departments and learns to adjust himself to different tasks and conditions.

Contradicting the common belief that only executives worry themselves into developing ulcers, both doctors hold that floor sweepers have the same basic problems as presidents. Also, they continue, every industry has its full quota of emotional problems of all kinds.

Grab the Bull's Horns: "It is not the psychiatrist's function to make the world over to suit the ideas of each patient," Dershimer avers. "On the contrary, his function in dealing with managers and employees is to help them assume and meet the responsibility of solving their own problems."

If an employee feels he's being treated unjustly, the psychiatrist can:

- Urge that man to take his complaint to a departmental superior, in accordance with company procedure;
- Then advise the man's superior that the patient deserves a hearing.

The result usually is settlement of the grievance, and a gain in self-confidence and mental health for the employee.

Facing a problem, Dershimer believes, is the way to conquer it. An employee who asks for a vacation or transfer when confronted by some vexation is only running away from the problem, eventually will have to come back to it.

Two-Way Benefits: The supervisor or department head also profits when one of these personnel problems is solved, Dershimer points out. When the psychiatrist talks to the supervisor, he asks what measures have been taken to help the patient. Usually, Dershimer says, the supervisor's tactics will include one plan that stands a

BUSINESS & INDUSTRY

good chance of success, and Dershimer will recommend that he concentrate on that one. In this way, the supervisor learns good personnel relations techniques and at the same time another problem is ironed out.

At Cyanamid as at Du Pont, most of the individual cases involve problems not directly related to work. However, Dr. Woodward regards these cases as equally important to the company, because a worried employee brings his worries with him when he goes to work, and discontent can be contagious.

Ounce of Prevention: Accordingly, Woodward looks on his work as primarily a preventive program: the aim is to cure cases before they become a disruptive and distractive influence on others.

Another cardinal point in preventing dissatisfaction and annoyance among employees is promoting understanding. Some companies use group talks for this, but Woodward prefers a more informal type of discussion—ideally, an informative conversation over the luncheon table.

Woodward travels frequently to Cyanamid plants across the country in his efforts to help as many employees as possible, is available in the company's main offices in New York at least three times a week.

Psychiatrists Wanted: Three large chemical companies with offices in New York have vocational counselors who try to help employees with their individual problems, although this is only incidental to their main duties. In serious cases, an employee is sent to a private psychiatrist, and the company usually pays the initial fee.

One of those counselors told CW that she would like very much for her company to have a full-time psychiatrist; she said she feels that a large company needs one. Her company is considering an expansion of its medical staff, she added, and a psychiatrist may be hired when that takes place.

Dow Chemical says it's deeply concerned about the importance of mental hygiene, but so far Dow has not employed a psychiatrist. It employs a psychologist full-time at its Midland site, and also retains a firm of psychologists for consultations on industrial relations policies.

It wouldn't be too sweeping a generalization to say that every company and every employee has problems affecting—sometimes endangering—mental health. Up to now, these problems either have been ignored, or else the anxiety-ridden employee has been "talked to" by management men who may know business, engineering,

science and finance—but how much psychology? Large companies like DuPont and Cyanamid have sized up this situation, decided that a specialist is needed. Eventually, company doctors may commonly come in twos—one for physical health, one for mental health upkeep.

Clean Bill of Health

No halo, or even a medal, is scheduled to be awarded for the feat, but the chemical process industries can

take pride in the fact that they were in the good graces of the Better Business Bureau throughout 1952.

In BBB's 1952 report, out this week, only one chemical item—pest control products—is listed among the 57 businesses that were the major targets of consumer and industry complaints last year.

While BBB fielded nearly 38,000 complaints on television sales and service, it received 2,098 complaints about pest control merchandise—1,724 from consumers, 374 from businessmen.



Birthday Party for Diatomite

JOHNS-MANVILLE CORP. this week in Lompoc, Calif., is holding an open house for the public and a barbecue for employees by way of celebrating:

- The 60th anniversary of the first commercial shipment of diatomite from this site of "the world's largest and purest deposit of diatomaceous earth";

- The 25th anniversary of J-M's operation of the mining and processing works at "White Hills";

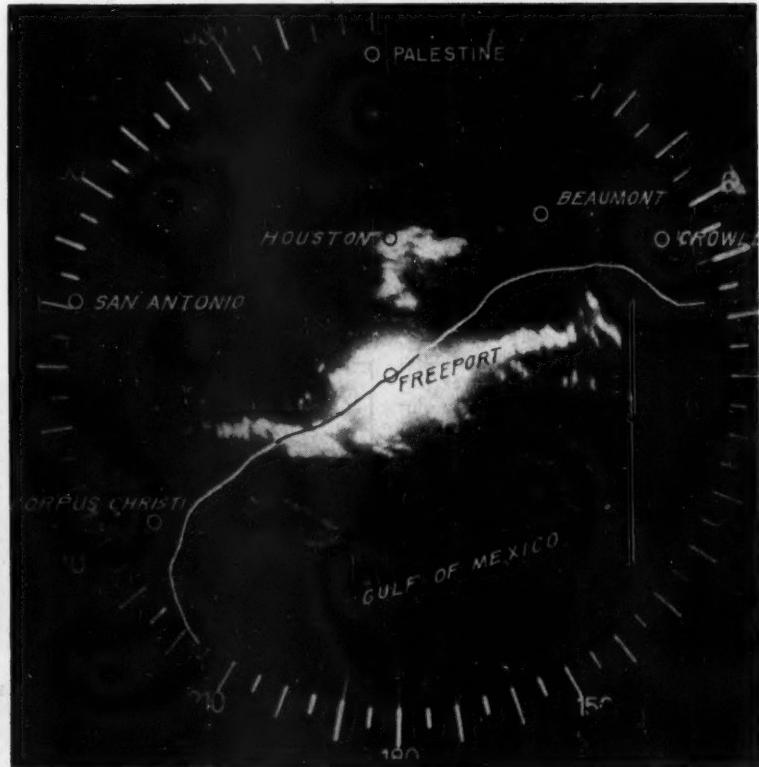
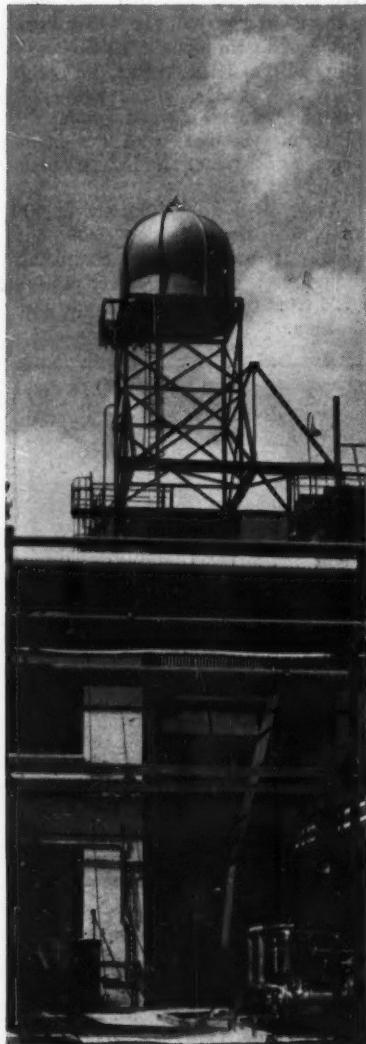
- And—although this isn't included in the announcement—the return of industrial peace and production to this plant after agreement on costly new health and safety measures settled last year's seven-month strike.

Plant Manager O. B. Westmont and his staff (*above*) organized themselves as a general committee in charge of arrangements, drew up plans for a 2,000-serving barbecue and tours of the quarries and mills. Main speakers: J-M's Presi-

dent Adrian Robert Fisher and Vice-presidents Arthur S. Elsenbast and J. P. Syme. Guests of honor include Percy Heckendorf, Santa Barbara, as personal representative of Governor Warren; R. C. Jacobs, mayor of Lompoc; and state health officers.

Since 1928, J-M has been processing diatomite into powders, bricks, aggregates and other forms; the works has grown from a two-man operation in 1893 to the present plant with 650 employees and an annual payroll of more than \$2.5 million.

With improvements made last fall, the Lompoc works is now regarded as having among the best health and safety provisions of all U.S. mineral processing plants. One of the principal open-house exhibits: a demonstration of health and safety equipment, featuring a completely air-conditioned truck cab and a portable, plant-size vacuum cleaner nicknamed "Pluto."



H-Hour Harbinger

SHINING UP its radar dome in anticipation of the oncoming hurricane season, Dow Chemical Co.'s Texas Div. prepares to track another summer's storms in the Gulf of Mexico. In operation since 1948, the scheme has already proved valuable—it protects life and property, inspires confidence, enables Dow to avoid unnecessary shutdowns.

From 1940 to 1948, Dow closed down four times for a total of 15 days' working time because of hurricane threats. What hurt was the unnecessary time loss; only twice did the hurricane hit Freeport.

By contrast, since installation of its radar dome, Dow's shutdowns have been fewer, justifiable. Its record:

- In the summer of 1949, hurricane warnings were flown from Brownsville, Tex., to Lake Charles, La., when a tropical storm was reported 100 miles off the Texas coast. Before radar, Dow would have been at least partially under wraps by then. But in this instance the Dow radar failed to show the typical spiral rain patterns of a hurricane, and movement of rain squalls indicated that the storm wasn't likely to pass even close to Freeport. Result: the

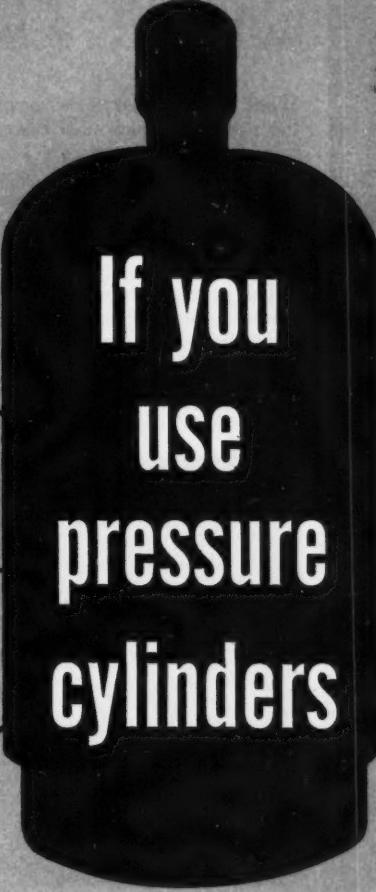
plants remained open; the storm circled past.

- But in October of the same year the radar spotted trouble much farther out—a full hurricane 200 miles to the south. The hurricane was tracked and this time the plants secured. The hurricane hit Freeport heavily.

Vital Statistics: In operation every year during the "hurricane season"—June 15-Nov. 1—the radarscope has a range of 300 miles. Its 8-ft. parabolic reflector is set 107 ft. above sea level, enclosed in a 14-ft. plastic dome. The control room inside the power plant has three 12-in. viewing screens, sends out 180 impulses a second, is believed to be the first ever specifically installed for hurricane tracking. When winds of dangerous velocities are reported in the Gulf within 18-24 hours of Freeport, Dow issues a preliminary alert to plant personnel; 10-12 hours before H-Hour, final warnings put shutdown plans into motion; 2-4 hours ahead of the storm center, the last evacuee has departed.

In the future, Dow plans experimental work on the use of radar to determine radius of dangerous winds, maximum wind velocity, and predicted change of movement.





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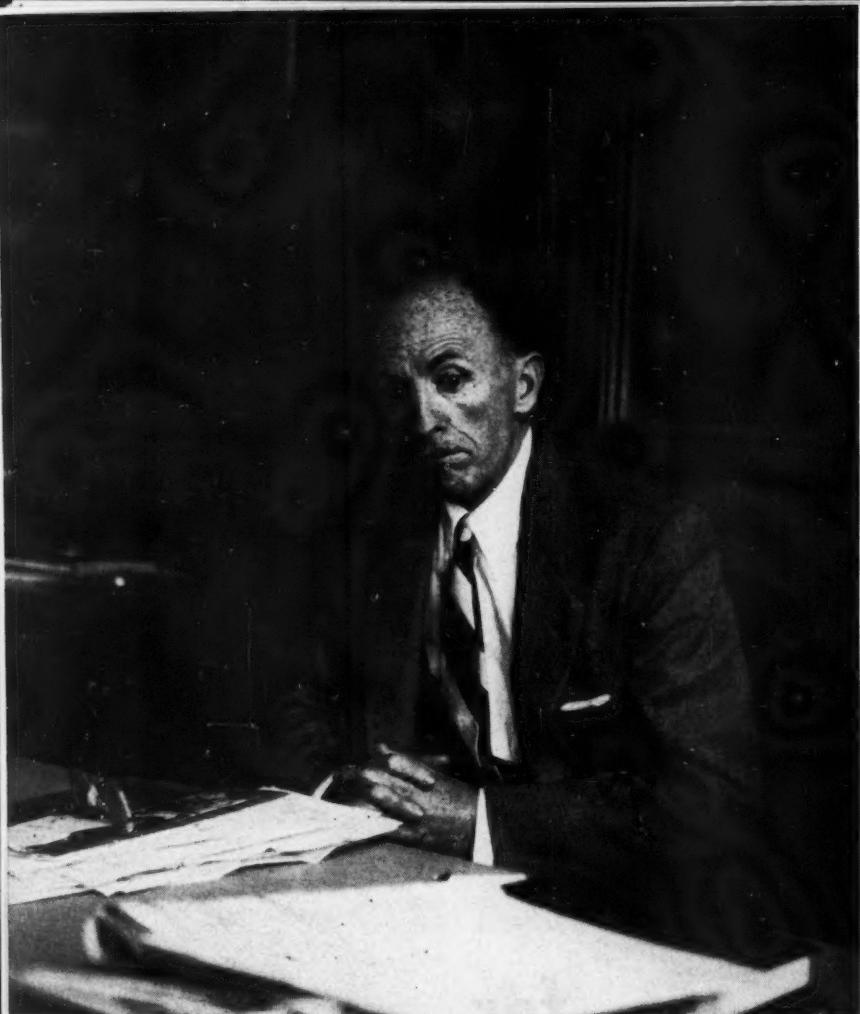
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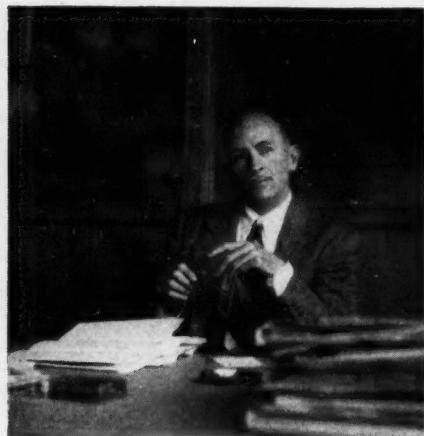


THERE ARE NO pat answers in personnel work. Nopco Chemical Co.'s Lewis Carter, personnel director for 10 years, is still puzzling out each problem separately.

PHOTOS BY CARTER JONES

What are the tasks, the headaches, the rewards of personnel directors in the chemical industries? Are they mostly chemical-industry men who happen to be assigned to personnel work, or are they mainly personnel specialists who happen to be working for chemical companies?

This week, **CHEMICAL WEEK** draws a bead on these officials with a nationwide survey and a photographic narration of a typical one-day stint of personnel director's duties, as carried out by L. M. (Nick) Carter of Nopco



"SOMETHING'S WRONG with a pump. Tighten a screw, replace a part. You're back . . .



"WHEN AN EMPLOYEE has a legitimate gripe, you sit back and listen. The file clerk or sweeper-upper must be as welcome in your office as chief chemist or executive. But if they don't get action, they stop coming in; your value as management's link to them is nil."

Are His Problem

Chemical, Harrison, N.J. (see pictures).

Questionnaires filled out by other personnel directors across the country show that these people are a zealous, aspiring group, often frustrated because the personnel department is regarded as an auxiliary motor—instead of a main engine—in making the company “go.”

Bosses “Too Busy”: Many of the directors replying in this survey feel that chemical companies are underestimating the importance of personnel

departments. Findings include:

- Forty-six per cent say they're handicapped by company policies.
- In 72% of the companies, management seems “preoccupied” with sales and production.
- Nearly 31% of the directors think they're underpaid relative to other officials of their own companies.

One director's chief obstacle: “convincing management that we must hold our competitive position in attracting good employees the same as in attracting customers. Personnel

must be represented in management at the same level as other divisions of the business.”

Many Are Happy: On the other hand, a goodly minority of the personnel directors signaled back that “all is well.” Nearly 26% say they have no trouble in carrying out their programs, and 61% believe their salaries are about on par.

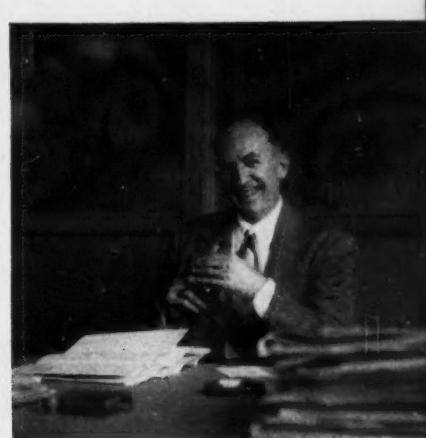
Of the personnel directors returning questionnaires, 35.5% had had scientific or engineering training; 72.6% had college degrees; and 79% formulate personnel policy. Salary distribution goes like this: less than \$8,000/year, 37.1%; \$8-10,000, 19.4%; \$10-15,000, 27.4%; \$15-20,000, 8.1%; \$20-25,000, 6.5%; and \$25,000 plus, 1.6%.



... in business. But people aren't machines. What works with one guy doesn't with the next.



It's my job to find the approach that helps everybody—in plant, in office, on the road—



... operate at best speed. People are the firm's biggest asset—I voice that belief.



YOU CAN'T be a softie, though. Here Carter testifies before N. J. State Examiner Edward Dunphy that an ex-employee isn't entitled to unemployment compensation.



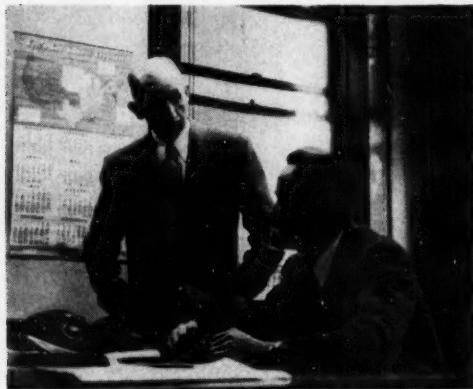
HIRING THE RIGHT MAN is especially tough in today's competitive labor market.

STORY BEGINS ON PAGE 18

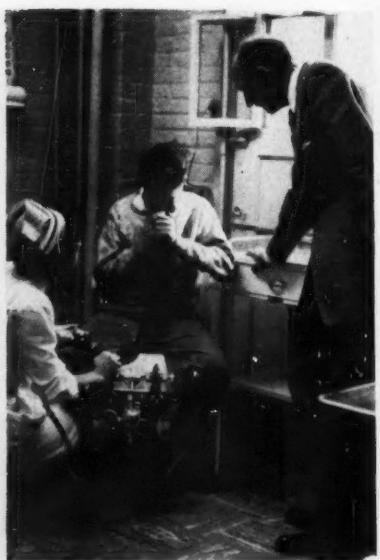
People Are His Problem



TRUCK DRIVERS are tough to catch, so Carter grabs John Domalesky between runs, explains pension plan.



AS PART of his work on union contracts, Nick gets briefing from Company Counsel Julius Denzler.

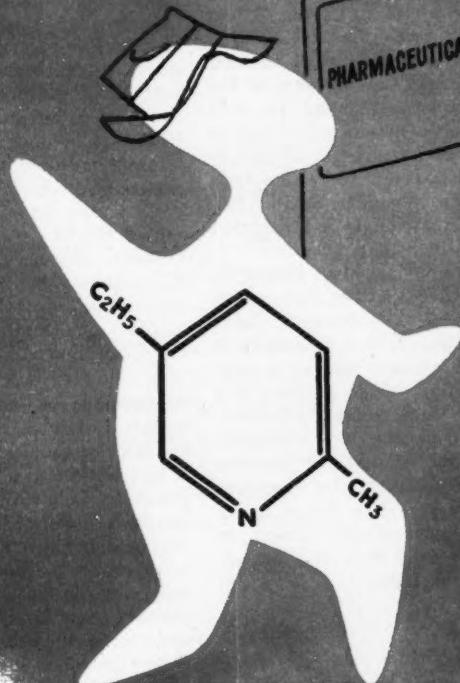


CALLED by Nurse Jones, Carter checks condition of engineer exposed to fumes.



THE PERSONAL TOUCH makes personnel work. On the way home, Carter drops in on sick Bill Goudie, has long chat . . . and leaves pay check.

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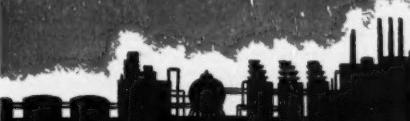
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Solubility in Water at 20°C.	1.22% by wt.

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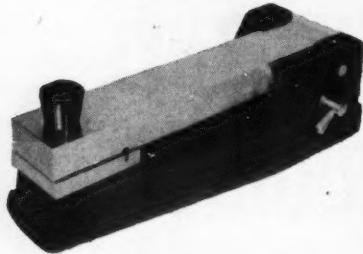
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BUSINESS & INDUSTRY

Cartel Preventive

At a world parley next month in Geneva, Switzerland, delegates will meet to discuss a proposal for a set of rules that might prevent the kind of inter-country resentment aroused by the judgment in the United States' antitrust action against Du Pont and Imperial Chemical Industries. The meeting, from June 30 to Aug. 7, will be the 16th session of the United Nations Economic & Social Council (ECOSOC), and the proposal is for an international agreement to curb "harmful cartel practices." Possibly having in mind the anger of British and Canadian people over the U.S. court's order affecting British and Canadian firms, the U.S. delegation to ECOSOC held that:

" . . . such practices often cannot be dealt with effectively by one nation alone under its own domestic laws, and . . . therefore supplementary international action is needed to cope with the portions of the problem that lie beyond a single country's jurisdiction." The goal, the U.S. delegates told ECOSOC, should be "healthy and active competition" that "provides a spur for lower costs, lower prices and higher productivity, which in turn lead to greater trade and increasing standards of living."

LEGAL

Liability Lingers On: Price-ceiling regulations are gone but not forgotten. Although the regulations were canceled in mid-March, the government is still carrying on enforcement duties by bringing lawsuits against companies accused of having violated the rules while they were still in effect. One chemical processing company involved in these proceedings is Ohmlac Paint & Refining, New York. OPS alleges that between April 21 and Sept. 30 last year, Ohmlac's overcharges totaled \$17,413.20, and that overcharging was continued right up to the day paint price ceilings were removed. OPS is asking triple damages in such suits, plus "such further relief as the court may consider just and equitable."

Patent Law Clinic: Numerous chemical company lawyers are expected to attend the five-day study of current problems in patent law starting July 6 in New York, sponsored by the Practicing Law Institute. Topics will include changes effected by the Patent Act of 1952, license negotiations, trial practices in patent lawsuits, a review of continuing developments in trade-

mark law, patent clauses in government contracts, and a description of the Canadian patent system.

Sleeping Pill Addicts: Illegal retailing of barbiturates and other drugs has become a problem of national importance, says Commissioner C. W. Crawford of the Food & Drug Administration. Youngsters reportedly buy sleeping pills to go on a "binge," then take amphetamines or other stimulants to overcome the later depressant effect of the barbiturates. One drug store in Dallas, according to FDA, was selling 250 doses of barbiturate daily, using runners to supply customers around high schools and parks. Other cities in which inspectors report similar cases: Houston, New Orleans, Boston, Denver, Seattle. FDA's latest monthly report lists 21 convictions for selling barbiturates, amphetamines, sulfonamides, thyroid and hormones without prescriptions.

No Premium on Versatility: A judge in British Columbia has ruled that an engineer isn't entitled to standard fees if he practices in a branch of the engineering field in which he is not certified. Arthur Lionel, a registered chemical engineer in Victoria, B.C., is appealing the decision in hopes of collecting an additional \$1,911 for plans he drew in 1950—one for a concrete arena, the other for an electrical system in a new building.

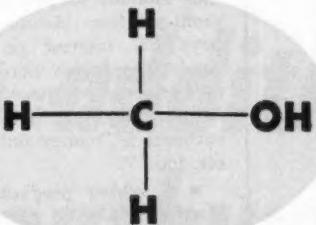
4711 vs 4711: Two companies whose toiletry products bear the trademark "4711" are squaring off for a court fight over use of that name in the United States. These companies are 4711, Ltd., New York, and Colonia, Inc., the U.S. distributor for the German house of "4711." The U.S. company says it seeks an injunction to keep the German products out of this country; Colonia says U.S. courts have ruled that the 4711 trademark can't be claimed as an exclusive label by any company that doesn't have the "secret recipes" used by the German firm.

LABOR

Loyalty Building Plans: Ideas for making employees more "company-minded" are meeting with increasing interest in the processing industries these days. Latest move in this direction: Norwich Pharmacal Co., Norwich, N.Y., is starting a stock purchase plan for all employees, including those of Eaton Laboratories, a subsidiary. The plan is entirely voluntary, and Norwich says the purpose is solely to

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Non-volatile content	0.0010% Maximum
Acetone	0.003% Maximum
Hydrocarbon	To Pass Test*
Acidity, as acetic acid	0.003% Maximum
Alkalinity, as NH ₃	0.003% Maximum
Carbonizable Substances,	
A. P. H. A.	50 Maximum
Distillation Range at 760 mm.,	
(A. S. T. M. Method D-268)	
first drop to dry	1.0°C. Maximum
	Including 64.7°C.
Specific Gravity	
25°/25°C.	0.78934 Maximum
Appearance,	
Clarity	Substantially free from suspended matter & sediment
Color, A.P.H.A.	5 Maximum
Odor	Characteristic and free from foreign odors
Permanganate Test	30 Mins. Minimum

(All percentages on weight basis)

*No clouding when diluted with 2 parts water

Whether you are using methanol as a solvent or intermediate . . . as an extractant, drying agent or in any of the other jobs that only methanol can perform so economically and efficiently . . . it will pay you to investigate and specify the standard of the industry—Du Pont Methanol.

Made to rigid specifications by the pioneer manufacturer of synthetic methanol, Du Pont Methanol is guaranteed pure (99.85%) synthetic methanol featuring a high degree of uniformity and dependability from shipment to shipment. When you specify and use Du Pont Methanol, you have the assurance that your supply will be of consistent high quality at all times . . . that variations in your products and processes based on the use of methanol will be held to a minimum.

Why not investigate the use of Du Pont Methanol in your business? We'll be happy to send you more information on this versatile, basic chemical—specifications, properties, suggested uses, etc. Just clip the coupon below or write on your letterhead for your copy of our new pamphlet, "Methanol—The Chemical With 1000 and 1 Uses." E. I. du Pont de Nemours & Co. (Inc.), Polymers Department, Wilmington 98, Delaware.

AVAILABILITY—Du Pont Methanol is available nationally through agents, shipped from strategically located stock points in tank cars; tank transports and tank wagons from some locations; and 55-gallon non-returnable steel drums.



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Walter R. Meyer, Ph. D.

Dear Reader:

At Enthone's Research Laboratories and at several leading universities, research has been conducted for years on problems in plating, cleaning and metal finishing. Your problems in these fields when submitted to Enthone will receive the attention of skilled, experienced metal finishing chemists. I hope you will let us have the opportunity of serving you. A few of the products of research are mentioned below. Others will be mentioned in future advertisements.

Sincerely,
Walter R. Meyer,
President & Research Director

PRODUCTS FOR CLEANING AND DEOXIDIZING OF METALS

METAL CLEANERS TO REMOVE ORGANIC DIRT

CLEANER 695 — A powerful high current density cleaner for steel used both anodically and cathodically. Also an excellent soak cleaner.

CLEANER 160 — An all-purpose cleaner. Excellent for both anodic and soak cleaning of steel, copper, brass and zinc base die castings.

EMULSION CLEANER 75 — A superior emulsifiable solvent cleaner used extensively for rapid cleaning of all metals at room temperature.
Special Cleaners Are Available For Cleaning Various Metals Such As Zinc, Magnesium, Lead and Brass

AIDS FOR OXIDE REMOVAL AND PICKLING

ACID ADDITION AGENT — A surface active material extensively used in sulphuric and hydrochloric acid pickles to reduce fuming, to give better wetting and to promote better pickling.

COMPOUND NR-31 — A slightly alkaline material added to water to prevent rusting of steel during drying and to protect steel during storage. Non-oily.

COMPOUND NR-37 — A material added to cold or hot water rinses to prevent rusting during drying. Leaves no residue.

COMPOUND 42 — A solvent acid cleaner for rapid removal of oil, rust, and oxide from steel, zinc, aluminum and other metals to prepare them for painting or organic finishing.

COMPOUND 134 — An alkaline material for rapid, electrolytic removal of rust and scale on steel, cast iron and malleable iron. Used at room temperature. No smut or attack on basis metal.

DESCALER 2A — A free-flowing acid mixture for pickling of iron and steel that overcomes the hazards of handling strong acids.

INHIBITOR 8 — An all-purpose inhibitor for acids including sulphuric and hydrochloric acid pickles to reduce fuming, to give better wetting and to promote better pickling.

WATER DISPLACING LIQUIDS — Several liquids are available for shedding water from metals for rapid, stainfree, spotless drying. Used after cleaning, pickling, plating and phosphating.

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B & I

make it easier for employees to buy company stock.

Other programs of this nature in the news this week:

- Employees at the creosote treatment plant of Joslyn Mfg. & Supply, at Panama, Okla., are becoming "company men" under the company's pension plan (which is in effect at all Joslyn plants and warehouses). Employees put up 5% of wages, and the company contributes several times that amount (depending on current profit-and-loss standings) and also pays 6% interest on accumulated funds. Employees don't waste materials or abuse equipment, because they feel that anything that hurts company earnings is "money out of our pockets, too."

- A rubber products company at Hartford, Conn., reports that employee grievances—formerly a major nuisance to management—now are rarities after having used the "Scanlon plan" for two years. This plan, devised by Prof. Joseph Scanlon of Massachusetts Institute of Technology, gives all employees a chance to take part in piloting company operations. Employees present their ideas to a screening committee made up of elected representatives from all departments. Charles Wyman, executive vice-president of the H. O. Canfield Co., says this has brought about greater cooperation and team spirit among all employees, with financial benefits as a direct result.

Plant Elections Scarce: Labor unions are trying to step up organizational efforts by using more of their headquarters staff members to call on prospective members, but results haven't yet appeared. The only bargaining election in the industry's news this week was at a small plant in Philadelphia, where maintenance and production employees of Clarkson Laboratories, Inc. voted by 15 to 2 in favor of representation by International Chemical Workers Union (AFL). They'll be members of ICWU Local 128, which also is bargaining agent at other chemical plants in Philadelphia.

No Wage Plateau Yet: Defense spending may be leveling off, but chemical wages still are climbing. Latest wage increase in the news: a 4¢/hour across-the-board rise for about 2,500 employees of Union Carbide's Electro Metallurgical plant at Niagara Falls, N.Y. This pay boost is part of a new two-year agreement with Local 250, United Gas, Coke & Chemical Workers (CIO), and is retroactive to Apr. 22.



Consolidated announces an additional service to Southwestern users of Sulphuric Acid

To help Southwestern industries dispose of their spent sulphuric acid, Consolidated Chemical Industries Inc. has recently placed in operation at Baton Rouge, Louisiana, the largest sulphuric acid sludge burning unit ever built. This addition now permits Consolidated to decompose—and make strong new acid from—approximately 1000 tons of spent sulphuric acid per day.

The disposal of spent acid has become an increasingly serious problem for oil refineries and process industries. Many users have been forced to operate acid concentrators. Also, certain sludge dis-

posal practices have greatly increased air pollution problems for acid users.

Consolidated's new facilities substantially eliminate the acid disposal problems of a number of Southwestern users.

The need to operate concentrators is reduced. Sulphur waste is minimized and air pollution by sulphur dioxide is reduced. Most important, the economics of handling spent acid in this manner is comparable to older forms of disposal.

We, at Consolidated, are constantly searching for better ways to serve users of heavy chemicals. We are proud of the part we have played in helping our customers solve their problems.

Consolidated Chemical Industries Inc.

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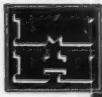
The key to problem reductions

Outstanding in its ability to effect reductions of aldehydes and ketones where —

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- high yields are a *must*

Sodium Borohydride may well be the key to *your* reduction problem.

Metal Hydrides is always ready to offer assistance in the applications of NaBH₄ to specific compounds. Our bulletin 502 contains valuable data, which we will be pleased to forward upon receipt of your request.



METAL HYDRIDES

22 CONGRESS STREET • BEVERLY • MASS.

B & I

• Four locals of ICWU are happy about recent wage rises. Two of these came about in East St. Louis, Ill., at the plants of Virginia-Carolina Chemical and Darling Fertilizer. V-C gave employees a package worth about 9¢/hour, including wage increases ranging from 5 to 11¢. Darling granted a 7½¢ pay boost plus more than 3½¢ in other benefits. U.S. Industrial Chemicals, Newark, N.J., is giving employees a 10¢ general increase; and Tacoma Powdered Metals, Tacoma, Wash., is raising pay rates by 7½¢/hour.

Parleys in Texas: Two locals of Oil Workers International Union (CIO) are engaged in touchy negotiations with Jefferson Chemical Co., Port Neches, Tex., and management of Sinclair's refinery at Houston. The Jefferson-OWIU contract expired Apr. 3, but production has continued at normal rates since then. Sinclair's 1,600 Houston refinery employees scheduled a strike vote as negotiators discussed the dispute over assignment of work to employees of a contracting company during the firm's current expansion program.

Martial Law Asked: No improvement can be detected in the tense situation at Elizabeth, La., where shooting and dynamiting have punctuated the eight-month strike by two AFL unions against two local paper mills. Sheriffs of the three parishes (counties) in that vicinity reportedly are in favor of having Gov. Robert Kennon declare martial law. Latest violence was the dynamiting of an auto belonging to an employee of one of the mills.

EXPANSION . . .

Sulfuric Acid, Trifluorochlorethylene: General Chemical Div., Allied Chem. & Dye Corp. will build two plants to make sulfuric acid and trifluorochloroethylene at its Baton Rouge, La., works.

Schedules call for completion of the sulfuric facilities by the end of 1953; some will be captive, some sold in the Gulf Coast area.

\$18 Million: National Gypsum Co. plans to spend \$18 million for expansion during the next two years. Predicting "a long trend upward," Melvin Baker, board chairman, expects periods of business recession, but adds that during the next two years, "the potentials for growth appear unlimited."

Aviation Alkylate: American Mineral Spirits Co. (Toledo, O.), a wholly

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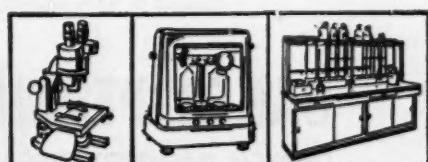
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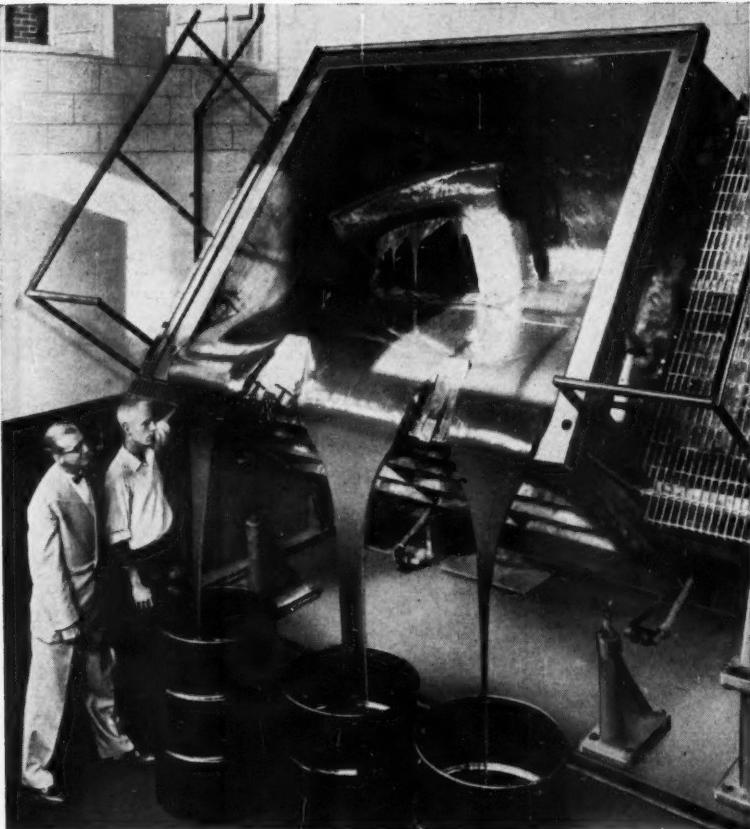
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for this sixteen page book which describes Harshaw's major activities.





BAKER PERKINS builds world's largest color blending machine

Now in operation at the Hilton-Davis Chemical Company's plant in Cincinnati, this huge blender and flushing machine, designed and built by Baker Perkins Inc., mixes 1000 gallons of flushed colors at one time. That's roughly 15,000 to 30,000 lbs., depending on the specific gravity of the colors, nearly three times the capacity of any other blender in use today. The unit weighs 21 tons and took two years to design, construct and install.

You may not need the world's largest color blending machine, but you can't go wrong if you rely on the company that can build one. When you need good, dependable chemical mixing machinery that will help increase your production and keep your maintenance and operating costs low, it will pay you to consult a BAKER PERKINS sales engineer or write us today.

248-A

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B & I

owned subsidiary of the Pure Oil Co., has been granted a certificate of necessity for \$3.7 million of aviation alkylate facilities. American Mineral is allowed 100% amortization over five years.

Sodium Bisulfite: Monsanto Chemical Co.'s Merrimac Div., is taking steps to increase production of sodium bisulfite by some 50%. It is also lining up distributorships to market the chemical—mainly as a silage preservative.

Phenol: Loven Chemical of California plans to build a 10-million lb/year phenol plant at Newhall, Calif., and an allied 10-million lb. formaldehyde unit. Total cost: \$3,670,000, with construction tentatively slated to start early in 1954.

Isopropanol, Acetone: Shell Oil Co. of Canada Ltd. is now bringing in a \$20-million lb. isopropanol-acetone unit at Montreal East (CW, May 9) based on raw materials from its adjacent oil refinery. This is Canada's first synthetic isopropanol unit, and the first petroleum-based acetone plant. Contrary to earlier reports, however, it is not the Dominion's first acetone unit; Shawinigan Chemicals Ltd. has long been a major producer of acetone from nonpetroleum sources.

COMPANIES

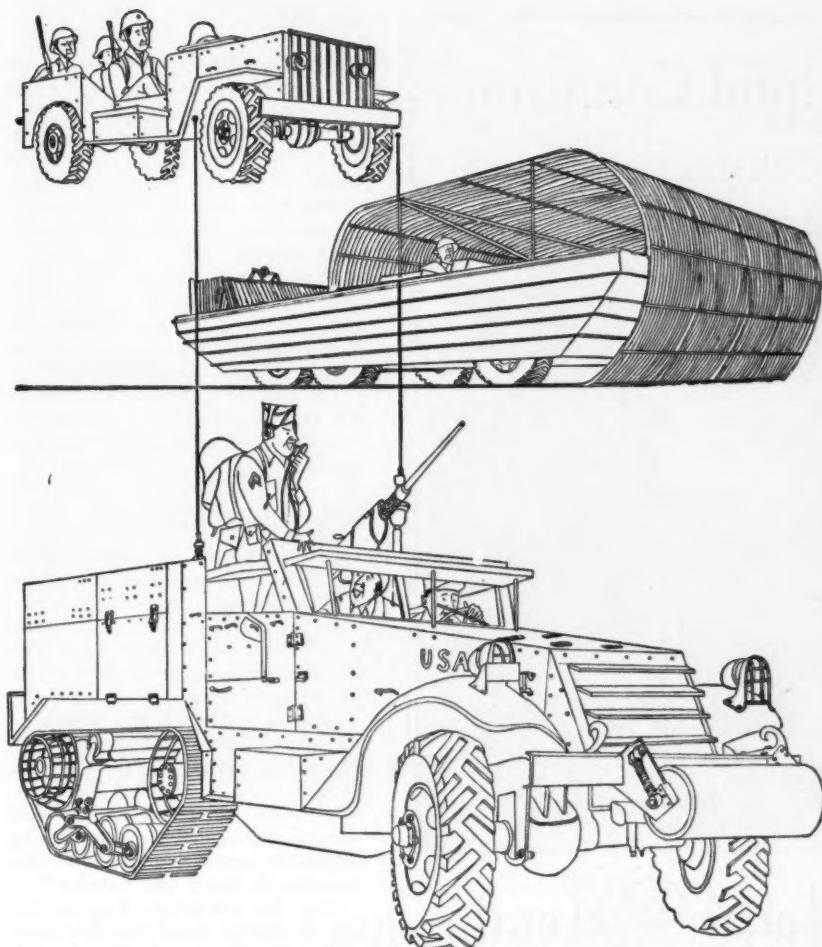
Spencer Chemical Co. stockholders have approved an increase in the firm's authorized indebtedness from \$17 million to \$30 million. At present the company has \$15 million debt outstanding, consisting of notes maturing from 1953-1971. This debt will be rearranged and an additional \$10 million 4½% bond issue will be floated.

Spencer also plans to set up a \$3-million stand-by credit with three banks. Proceeds of the financing program will be used to help pay for the proposed polyethylene plant near Orange, Tex.

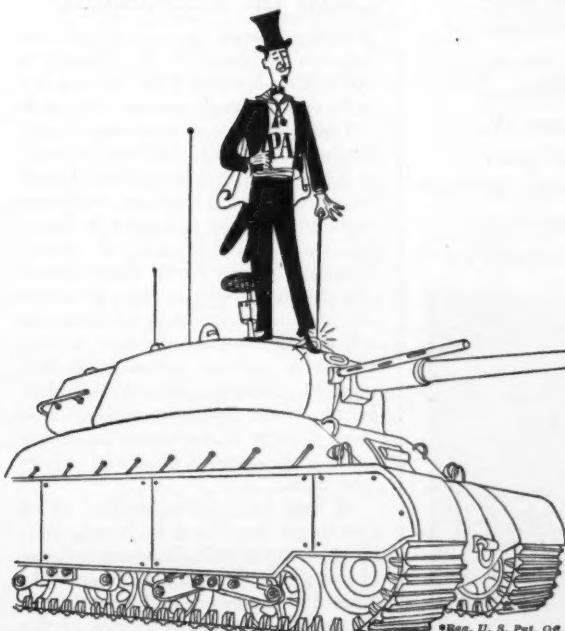
The Federal Munitions Board has cancelled a contract with Pacific Northwest Alloys Co. for magnesium produced by the company at its \$20-million electro-metallurgical plant at Spokane, Wash.

All magnesium presently produced at the plant has been going into the government stockpile.

Closing of Chemical Corps plant in Niagara Falls is contingent upon the action to be taken at the budget hearings before Congress this month. Officials of the Corps say that as it



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Barrett Phthalic Anhydride leads a busy civilian life — as a materials source for the plastics, paint, dye, ink and drug industries.

But equally dramatic and important is "PA's" contribution to America's defense needs. Basic GI uses of PA include plasticizers for smokeless powder and rocket fuels and large amounts of surface coatings for jeeps, tanks, guns and ammo.

If this versatile industrial chemical is used in your business, it will pay you to buy from Barrett—world's leading producer of coal-tar chemicals and Phthalic Anhydride. Barrett's basic position in the industry assures you uniform quality, steady supply and quick delivery.

Barrett technical assistance on application problems is available without cost to all customers and prospects.



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- "ELASTEX" 10-P Plasticizer (DIOP)
- "ELASTEX" DCHP Plasticizer
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- Phenolic Resins
- Urea Resins
- Niacin (Nicotinic Acid)
- Isonicotinic Acid
- Pyridines
- Picolines
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In early England all tin was considered Royal property, and the Stannaries—or tin works—were leased out at very high sums to private individuals who paid directly to the Crown. The manufacture of pewter, composed of about 83 per cent tin, was controlled by an elite guild known as The Worshipful Company of Pewterers—under an unusual charter granted them in 1473 by King Edward IV. This astounding document empowered guild officers to "search all manner of workshops... to correct defects... seize and carry away all deceitful and unjust workmanships..." not in accordance with the usages and regulations of the Company. So was the standard of quality of English pewter enforced.

Modern industrial requirements of tin and its applications are infinitely more exacting than any medieval tinsmith could imagine. And new discoveries... new methods...new uses are continually being sought. For the latest developments, look to M&T—Foremost in Tin.

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B & I

stands now, the plant will close down this summer, since available funds will be depleted by June 30.

Originally built and operated during World War II by Du Pont for the Chemical Warfare Service, it is now operated by Hooker Electrochemical for the New York Chemical Procurement District.

At one time—prior to the outbreak of the Korean War—the property was put up for sale or lease. Before the offer could be acted on, however, war broke out again, and the Chemical Corps requested Hooker to contract with the government to rehabilitate and operate the government-owned plant.

Scientists' Census

This nation's need for scientists of all kinds will be "assessed with considerable care." That's the first action slated by the recently organized Scientific Manpower Commission in its program to assure an adequate supply of science-trained personnel.

Howard A. Meyerhoff, president of the commission and formerly administrative secretary of the American Assn. for the Advancement of Science, calls current statements on this topic "generalizations that apply in varying degrees to various branches and sub-branches of science and industry."

Once the commission has detailed data on the number of scientists needed, it will try to meet that demand through its eight member societies, Dr. Meyerhoff says.

Limit on Expansion?

Whether there's an opportunity for more electrochemical development in the Buffalo-Niagara Falls vicinity is a hotly controverted question this week.

Two engineering executives—Project Engineer Deane O. Hubbard of Hooker Electrochemical and Chief Metallurgist Joseph H. Brennan of Electro Metallurgical—say expansion is shackled by a lack of electric power. Niagara Mohawk Power Corp. doesn't dispute this assertion, says it would like to generate and sell more kilowatts but is held back by the law. A contradictory opinion comes from Bertram D. Tallamy, New York's state public works superintendent, who holds that the Niagara area "has many years of prosperous industrial expansion ahead."

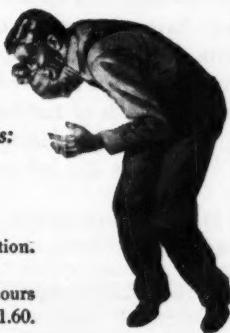
At least two electrochemical plants that might have been built near Buffalo have been built elsewhere because of the power situation, Hubbard told some 100 engineers and scientists at the second annual conference of the



Short or Long Term CAPITAL LOSS?

*No matter how they are figured—
eye accidents are costly to industry.
Here are some of the estimated charges:*

- 1 They cost nearly \$400 in average compensation.
- 2 They cost \$176,000,000 in lost man hours annually at an average per hour rate of \$1.60.
- 3 They cost an unknown but sizeable sum in idle machine time. (Remember, industry invests \$6,000 or more in tools to provide each job.)
- 4 They cost another appreciable sum in impaired worker morale.
- 5 They cost additional money in increased rejects and lowered output when green workers must be substituted for skilled.
- 6 They cost money in first aid and medical attention whether the eye injury is major or minor.



Any industrial eye accident is a capital loss. If you lose the skill of a valued worker through the loss of an eye, you have a long-term capital loss in a very real sense—with no gain, long or short, to compensate. Contact your nearest AO Branch Office and learn how an AO Eye Protection Program can practically eliminate these costs and pay for itself in less than six months. Or write American Optical Company, 5145 Vision Park, for free booklet "Improved Industrial Vision" which tells how AO's Industrial Vision Program cuts costs, increases production, decreases accidents.



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Ricinoleic esters and edible stearic, oleic and lauric esters. Used extensively by food, drug and cosmetic industries as emulsifiers, stabilizers and suspending and thickening agents.

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Widely employed in many fields as emulsifiers, lubricants, defoamers, thickeners, plasticizers, stabilizers. Ethylene, diethylene and propylene glycol fatty acid esters.

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Nonionics can be used with anionics and cationics; have wide range of compatibility with solvents, chemicals.

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B & I

Niagara Frontier Technical Societies Council.

Brennen said his industry's first major production was on the Niagara Frontier but that new plants now are going to the Ohio River valley and to Canada. Expansion at Niagara, he continued, will not come until adequate power is available.

Supply of power, said Project Engineer Harold I. Howell of Niagara Mohawk, is "beyond our control." He explained that power development has been snarled by a conflict in Washington as to whether the work should be done by federal, state or private organizations. Niagara Mohawk, he says, wants to start a \$390-million project that would increase output by 1.1 million kw. over the next six to eight years.

Faster and Cheaper

Refinement of processes for making liquid fuel from coal can be carried on more quickly and at less cost in laboratories than in a demonstration plant.

This is one of the major reasons listed by Interior Secretary Douglas McKay for his decision to close the Bureau of Mines' demonstration plant at Louisiana, Mo. (CW, May 9).

Questioned by Missouri's freshman Democratic Senator W. Stuart Symington about the move, McKay added that the bureau has "several coal-to-oil processes in the research stage that appear promising and on which it plans to accelerate its studies."

Plotting for Power

Twelve more companies have teamed up with Dow Chemical and associate firms to work with the Atomic Energy Commission on development of a nuclear reactor to produce power.

Of the four other industrial study groups working on atomic power problems, one is headed by Monsanto Chemical and the others are mostly made up of electric power and equipment companies and engineering concerns.

Twenty-three companies are now in partnership with Dow and Detroit Edison in the largest of these five study groups.

New members of the Dow-Detroit team: Consolidated Gas-Electric, Baltimore; Hartford Electric, Niagara Mohawk Power, Potomac Electric, Rochester Gas & Electric, Southern Co., Allis-Chalmers, Bendix Aviation, Ford Motor, United Engineers & Constructors, Atlantic City Electric and Gibbs & Cox.



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The new line of Stepan higher fatty alcohols are now available for your trial. These new fatty alcohols from tallow, soya, fish, and linseed oils lend themselves to a wide range of applications including use as emollients, emulsifiers, absorption bases, intermediates, penetrants, thickeners, etc.

SULFATES of these fatty alcohols, because of their excellent detergent qualities combined with low irritating of the skin, will be of particular interest for use in shampoos, heavy-duty household detergents, and other detergents in either liquid or

solid form. These Stepan fatty alcohol sulfates are available in a variety of forms as sodium salts or alkylamine salts.

Tentative specifications for the Stepan primary Makanol (higher fatty alcohols) are given below. Chlorides and bromides of these primary Makanol are also available.

All Stepan Makanol can be obtained in commercial quantities based on semi-works unit production. Their derivatives can be obtained in laboratory or pilot plant quantities.

TENTATIVE SPECIFICATIONS

	% Myristyl Alcohol	% Cetyl Alcohol	% Stearyl Alcohol	% Oleyl Alcohol	% Linoleyl Alcohol	Iodine No.	Saponification Value	Titer
MAKANOL I	6	27	15	50	2	55	2	42
MAKANOL II	6	27	67	4	2	52

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Chemical Intermediates
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CARDIS® ONE	195-200	1-2	4-5	12-15	55-65	EMULSIFIABLE PETROLEUM WAX
CARDIS® 314	184-189	4-6	4-5	13-15	45-50	EMULSIFIABLE PETROLEUM WAX
CARDIS® 319	180-185	5-7	4½-6	18-20	65-70	EMULSIFIABLE PETROLEUM WAX
CARDIS® 320	180-185	5-7	4-5	28-30	75-80	EMULSIFIABLE PETROLEUM WAX
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MEKON® B-20 A-20 Y-20	190-195 190-195 190-195	3-5 3-5 3-5	BROWN-BLACK AMBER-6 MAX. YELLOW-3-3½	0.0	0.0	MICRO-CRYSTALLINE HARD AND BRITTLE
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WARCO WAX 150-A	145-155 145-155	15-20 15-20	YELLOW 1-2 BROWN	0.0	0.0	MICRO-CRYSTALLINE PLASTIC
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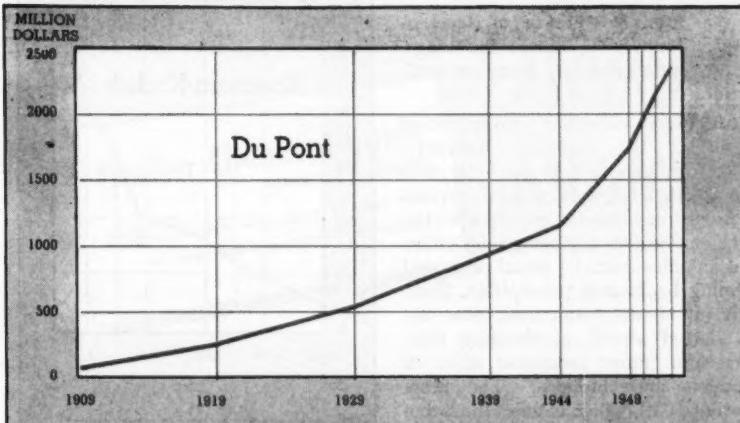
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Uneasy Lie the Heads

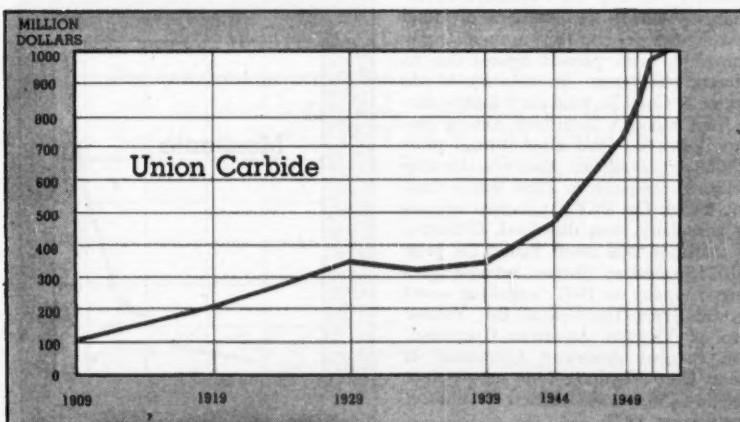
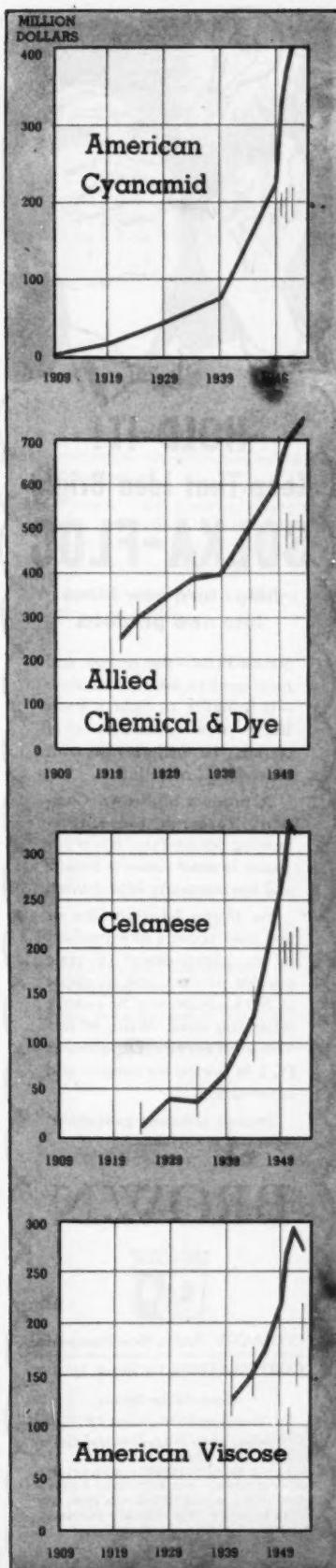
Crashing into big business's charm circle — the billion-dollar-total-assets club—Union Carbide joins Du Pont as representatives of the chemical industry. Carbide's record: up 866% in 32 years.

Since the turn of the century, when the consolidation period in American business, peppered by a series of mergers, gave rise to rapid growth, "big business" has been anything but static. Composition of the 100 largest corporations has varied significantly from decade to decade; and one of the foremost factors exerting pressure—upwards on some firms, down on others—is research. The Brookings Institution points out that the chemical industry has fought its way up from less than a 5% (in 1909) to almost a 10% (in 1949) chunk of the total assets of the 100 largest corporations.

Roll Call: Of the original eight

chemical companies classed in the top 100 forty years ago, only three remain to answer muster in 1949. Du Pont, Eastman Kodak and Allied Chemical & Dye have not only endured, but have also forged ahead. Their history supports a Brookings contention that to maintain one's position demands drastic changes in product mix—the result of research and shifted emphasis to meet competition within the industry group.

Newcomers in 1949 include Union Carbide, Procter & Gamble, Dow, Celanese, American Viscose, American Cyanamid and Monsanto. Their composite slice of total assets roughly approximates 4%; no single company (except Carbide) accounts for more than 1% by itself. What has made the top so slippery for those who have fallen behind since 1909 has been mainly the pressure toward innova-





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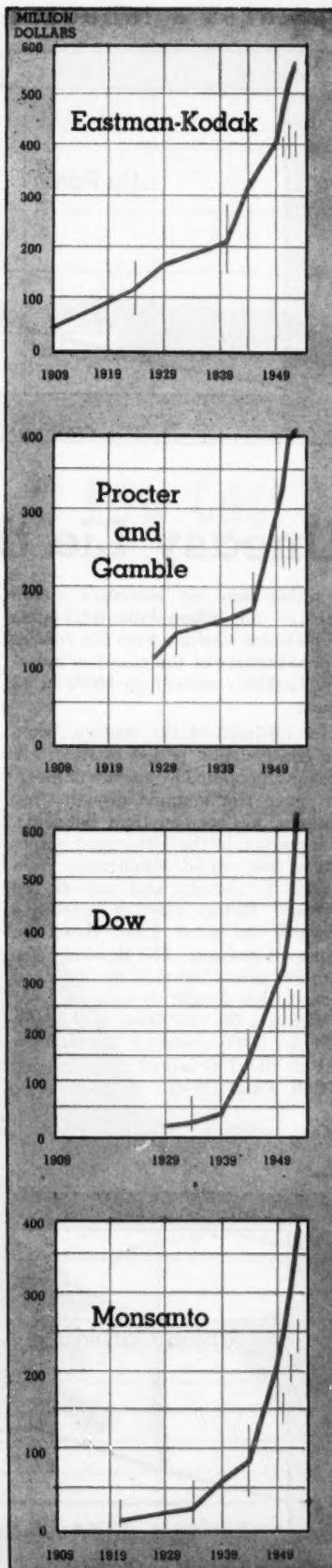
tion in product and market development. "Innovation," finds Brookings, "leaves little immunity from competition."

Mileposts: Further investigation highlights the chemical industry's surge, discloses that in the four years characteristic of four crucial periods in American economic growth over the last five decades, top companies either took significant strides ahead or started slipping backwards perceptibly. Similarly, at identical junctures, newcomers darted ahead, accelerating their pace into "more promising areas of products and methods." The years chosen: 1919, which catches the boom of the World War I; 1929, which hits the peak of the first postwar boom; 1935, occurring right after the trough of the depression; and 1949, which snags the peak of the second postwar boom.

New Element? With an eye to the future, The Brookings Institution sights an element that has come to the fore since the days when an industrial giant was formed merely by merging competitors. In the chemical industry it appears as the accelerated pace and range of innovation, which generates the need to move also or otherwise combat the new threat. The competitive character of the chemical industry is not due so much to the personalities of its leaders as to a stronger force: free enterprise, which has its own inexorable means of punishing the company that ceases to be competitive.

Footnote to Total Assets Graphs

Union Carbide: Total assets from 1921-1937 are before deductions for reserve for depreciation; for 1938 and thereafter, figures are after deductions. Du Pont: Accounting procedures have changed occasionally, making strict comparison unreliable. Allied: compilation of total assets figures prior to 1935 are not strictly comparable with present figures due to different treatment of treasury stock. Procter & Gamble: total asset figures taken from Moody's Industrial Annual Reports. Dow: no total asset listings prior to 1929 are available. Eastman: became operating company in 1936 when Eastman Kodak Co. (N.Y.), principal operating subsidiary, was dissolved. Celanese: No available total assets figures for prior to 1924. American Viscose: became operating company in 1937, acquiring assets of subsidiaries, The Viscose Co., Viscose Corp. of Virginia. American Cyanamid: 1946 merged American Cyanamid & Chem. Corp., Lederle Labs into parent company. Monsanto: earliest total asset figures from 1921.



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HOOKER ALUMINUM CHLORIDE ANTIMONY TRICHLORIDE

ALUMINUM CHLORIDE

Formula: AlCl_3
Form: Anhydrous, gray crystalline solid,
supplied in four standard sizes
Molecular Weight: 133.3

PROPERTIES

Aluminum Chloride (Sublimables in air at 950°C.)	98.5% Min.
Iron	0.05% Max.
Heat of Solution	550 small cal/gm

SCREEN SIZES

- Extra Fine Grind—An unscreened material,
90 to 95% passing 40 mesh.
Fine Grind—An unscreened material, prac-
tically all passing 20 mesh.
Coarse Grind—An unscreened material,
1 mesh and finer, containing 25 to
35% finer than 20 mesh.
Coarse Screened—Same as coarse grind,
screened to remove 20 mesh and finer.

USES

- Catalyst: For Friedel-Crafts synthesis, iso-
merization, alkylation, polymerization,
halogenation.
End Products: Plastics, resins, high octane
gasoline, lubricants, lube additives,
synthetic rubber, dyes, photographic
chemicals, pharmaceuticals, etc.
Fluxing Agent: For aluminum refining and
aluminum casting.

ANTIMONY TRICHLORIDE

Synonym: Antimonous chloride
Formula: SbCl_3
Form: Anhydrous, yellowish solid
Molecular Weight: 228.1

PROPERTIES

Antimony Trichloride	99% Min.
Iron and Arsenic	1% Max.
Lead	0%
Melting Point	73.4°C

USES

- Catalyst: Dyes, pharmaceuticals,
petrochemicals.
Antimony Salts: Mordant in cotton printing.
Metal Treating: Antimony plating, bronzing

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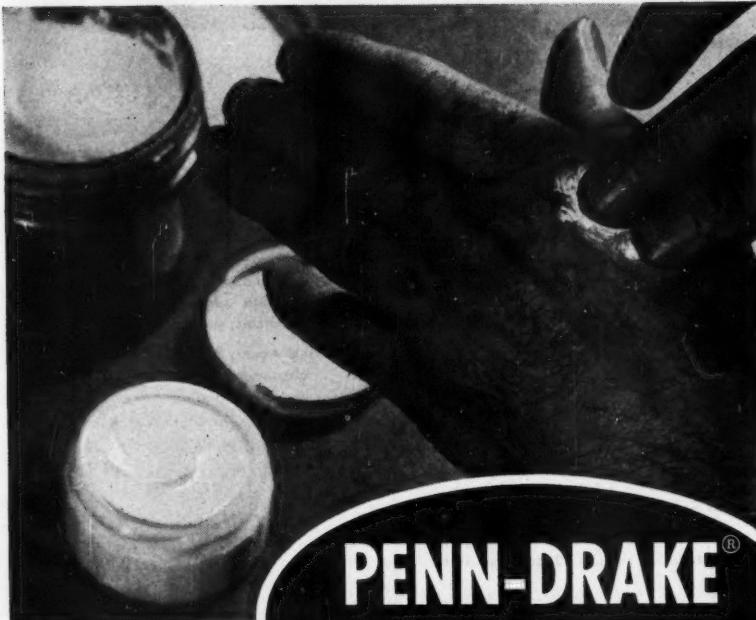
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TYPICAL SPECIFICATIONS

Regular Grades	Saybolt Melting Point, °F.	Saybolt @ 210°F. Viscosity	2" Cell Color	A.S.T.M. Penetra- tion
Snow White, U.S.P.	119/123	63/67	1.5/2Y	175/220
Lily White, U.S.P.	117/121	63/67	8Y	175/220
Cream White, U.S.P.	117/121	65/70	24Y 1R	175/220
Blonde, U.S.P.	117/121	65/70	35Y 5R	175/220
Extra Amber, U.S.P.	116/120	67/72	35Y 6.5R	175/220
Amber, U.S.P.	116/120	67/72	35Y 10.5R	175/220
Red Veterinary	116/120	70/75	35Y 20/30R	175/220
Dark Green	125/135	100/105	Dark Green	110/150

Special Grades

Super White, U.S.P.	119/123	63/67	.5Y	175/220
Anomalous White, U.S.P.	125/135	80/85	1.5/2Y	110/150
Pensoline White, U.S.P. (soft)	110/115	53/56	2Y	220/250
Pensoline Yellow, U.S.P. (soft)	110/115	55/60	35Y 6R	220/250



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Sulfur/Venezuela: The Venezuela Sulphur Corp., C. A., in which U.S. capital is interested, is building a \$4.5-million refinery at Carupano, Venezuela, with an estimated capacity of 250,000 metric tons/year of sulphur. It's due for completion in the first half of 1954.

Resins/Brazil: American Polymer Corp. has officially opened the plant of its Brazilian associated company, Polymer Produtos Quimicos do Brazil, Sao Paulo. Construction was started July, 1952; complete plans were supplied by the American firm.

Company Sale/Canada: Control of the McArthur Chemical Co., Ltd., the oldest chemical company in Canada, has been purchased by the recently organized St. Maurice Chemicals Ltd. Included in the sale: McArthur's wholly owned subsidiary, Chemicals Limited. Present organization and personnel will be kept intact.

Sulfuric Acid/Australia: A £A 1-million sulfuric acid plant will be started next month near Newcastle (N.S.W.). To be built by Sulphide Corp. Pty. Ltd., it will use local pyrites, probably from Mt. Morgan. Output is estimated at 100 tons sulfuric acid daily, with completion date scheduled for the end of 1954.

KEY CHANGES . . .

Glen B. Miller: To director, Allied Chemical & Dye Corp., New York, N.Y.

Henry G. Walter, Jr., George M. Wells: To directors, Heyden Chemical Corp., New York, N.Y.

Jeremiah Milbank, Jr.: To director, Commercial Solvents Corp., New York, N.Y.

Edgar E. Brand: To vice-president, L. Sonnenborn Sons, Inc., New York, N.Y.

Robert L. Reeves: To vice-president, J. B. Ford division, Wyandotte Chemicals Corp., Wyandotte, Mich.

Charles B. McDermott: To vice-president, Winthrop-Stearns Inc., New York, N.Y.

Howard S. Bunn: To vice-president, Union Carbide & Carbon Corp., New York, N.Y.

William B. McCloskey: To vice-president, Davison Chemical Corp., Baltimore, Md.

John P. Remensnyder, Simon Askin: To vice-presidents, McArthur Chemical Co., Ltd., Montreal, Canada.

Roy H. Landis: To sales manager, Nitrogen division, Allied Chemical & Dye Corp., New York, N.Y.



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G.E.'S SANDBURG: Five ideas will get you ten.



PANEL SESSION: Admission charge, an open mind.

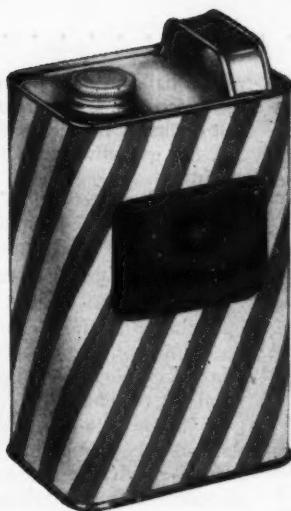
Profits in Pooled Ideas

"If two men swap five dollars," says Bill Sandburg, industrial engineer for General Electric's Chemical Div., "each man still has only five dollars. But if two men swap five ideas, then each man ends up with 10 ideas." In an interview with CW last week, Sandburg explained how 100 employees of the Chemical Div. have pooled their ideas in the firm's Work Simplification Program.

This month, the program is swing-

ing into its second year of operation. And although the final tabulation for the first year is not yet in, Sandburg figures the 100 employees have come up with \$100,000 worth of "work-simplifying" ideas. Since the program itself cost \$10,000 to maintain, that adds up to a \$90,000 profit on a \$10,000 investment.

Keep It Simple: The program is simply a logical extension of the firm's Cost Reduction Program. The idea is



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Call Continental the next time you need "F" style cans. Let us show you what we can do for you.

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Container	Suggested Use
Open Head Pails.....	Adhesives
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Utility Cans.....	Insecticides
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PRODUCTION

to encourage greater participation in cost reduction, and, as Sandburg puts it, "to multiply the industrial engineering effort."

To that end, he arranges informal round-table discussions. The full course consists of 10 two-hour sessions, ideally attended by 10-12 trainees. Sometimes, however, as many as 20 sit in on the talks.

Just about the only prerequisite for the course is interest in one's job, and the only admission charge is an open mind. Sandburg's job is to sell "cooperation." This he accomplishes by liberally sprinkling his talks with humor, by the judicious use of cartoons and other props, and by keeping everything on a shirts-sleeves, first-name basis.

Starting with the first session, trainees analyze the jobs in their areas. They then develop improvements in the methods and estimate the savings that can be achieved.

Accent the Positive: There are, says Sandburg, two types of minds: one that weighs all evidence and one that jumps at unfounded conclusions. He also distinguishes between "positive and negative" thinking. And to encourage workers to substitute "have you considered that . . ." for "it won't work," he has rigged up a set of red and green lights for the round tables.

When there is evidence of "negative" thinking, one of the members turns the light from green to red and the offending member must walk to the head of the table to switch the green light back on.

Carrying the same idea further, executives have two-sided red and green

plastic balls on their desks. Normally, the green side is closer to the visitor. But on first notice of "negative" thinking, the executive turns the red side up front.

Measuring Results: Tangible results of the Work Simplification Program are easy to measure:

- Cost reductions in each area.
- A complete record of current operating procedure. This facilitates the shifting of supervisors with a minimum of training, also transfers during vacations or illnesses.
- The establishment of temporary standards by comparing output with process charts. Temporary standards provide better scheduling, on-the-job cost control and more accurate cost accounting. They also speed up the establishment of engineered standards.
- Daily production reports point up improvement progress against schedules and against temporary standards, also pinpoint delays of all kinds in equipment and manpower. Thus engineers and supervisors can detect trouble spots as soon as they occur and correct them.
- Intangible results can be boiled down to these:
 - Employees' feeling of security and more satisfaction with their jobs when they realize they're on the Cost Reduction team.
 - Improvement of products and customer service.
 - Reduction of fatigue and safety hazards.
 - Reduction of in-process inventories.
 - Better administration.
- Some of the brightest ideas rising

How It Pays Off in the Plant

Here are a few examples of the techniques and savings that grew out of G.E.'s Work Simplification Program. Taken individually, of course, they are not significant. But collectively, they're mute testimony to the success of the program.

• Redesign of the face of a Scott Tester for measuring tensile strength using a piece of cardboard. Savings: \$640/year.

• Redesign of the guards on a rubber mill. Savings: \$136/year.

• Ratio-delay study of the manufacture of silicone rubber, which boosted production per shift from 350 lbs. to 400 lbs. Savings: \$6,900/year.

• Design of a tray with wire to catch hot silicone elastomers. Samples can now be cut into desired sizes by simply lifting the wires. Savings: \$200/year.

• Revision of balance sheets dealing with baling material. Savings: \$700/year.

• Switch to gal. cans (from gal. jugs) for shipping fluids so they could be sent by mail (rather than by express). Savings: \$2,000/year.

• Change in location for insulation resistance tests on silicone rubber. Formerly, the tests were made in Schenectady; now they're made at Pittsfield where the equipment is. Savings: \$2,000/year.

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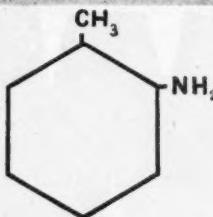
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o-Toluidine Technical

M.W. 107.2

DESCRIPTIVE INFORMATION

This intermediate is a clear, light yellow oil which may darken on storage. It is completely soluble in 10% hydrochloric acid, soluble in ether and alcohol, and sparingly soluble in water. Traces of nitrotoluenes and isomers may be present as impurities. o-Toluidine Technical is available in commercial quantities.



SPECIFICATIONS

o-Toluidine Technical is produced to these specifications: Purity . . . 99.5% minimum

Distillation Range . . . It shall distill 5 to 95 cc between 1.0°C., including the temperature 200.2°C., corrected to 760 mm.

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Opportunities for use of o-Toluidine Technical include application as an intermediate in the synthesis of rubber chemicals, dyes and pharmaceuticals. It may be interesting as an absorbent for SO₂ and SO₃ waste gases.

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ORGANIC
CHEMICALS DEPARTMENT

PRODUCTION

from the program are also the simplest.

At the G.E. silicone plant in Waterford (N.Y.), for instance, one of the operators had to climb three flights of stairs to turn a shut-off valve. A long extension eliminated this.

In the lab at the same plant, one of the tests involved cutting dumbbell-shaped samples from silicone rubber sheets, using a mallet and a hand die, then marking the samples with two parallel lines about 2 in. apart. Now, an Arbor press cuts six samples at a time and a rubber stamp attached to the press marks the samples as they are cut.

To Teach Teachers: Sandburg, who has been with G.E. for three years, has a diversified background as a mechanical and industrial engineer. He realizes, of course, that a successful Work Simplification Program must be a continuing one, that the project can't end with 10 round-table discussions. So the training committees are generally turned into permanent committees that meet for one or two hours a week.

His immediate goal is to instruct two or three engineers to teach the course. He is concerned with the broader aspects of work simplification, and now that the program is well under way, he plans to let it roll under its own momentum.

EQUIPMENT

Control Mill: A new mill, aimed for laboratory processing and control work, is being introduced by Morehouse Industries (Los Angeles). The smallest in the firm's line, it measures 23½ in. high, 8¾ in. in diameter, weighs 41 lbs. Morehouse figures it's a natural for development work because formulation and control work can be done quickly. The new unit utilizes a Carborundum stone revolving at high speed against a stationary stone of the same material. Power is supplied by a ¼ hp. motor operating on 110 v.; throughput ranges from 1 to 3 gal./hour.

Volume Feeder: Also aimed at applications involving small throughputs, is a new volumetric feeder brought out by the Omega Machine Co. (Providence, R. I.). Designed for small quantities of dry materials (like vitamin concentrates and mineral supplements) it's dubbed the Vitamiser Volumetric, measures 14x21x20 in. Advantages claimed: low power requirements, simple design, low operating and maintenance costs. It works on a synchronous motor that main-

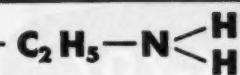
DOUBLE CHECKED
FROM RESEARCH TO INDUSTRY



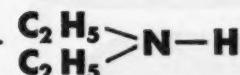
SHARPLES

ALKYL AMINES

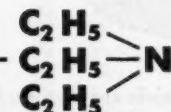
ETHYLAMINE



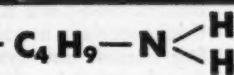
DIETHYLAMINE



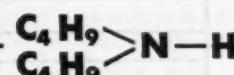
TRIETHYLAMINE



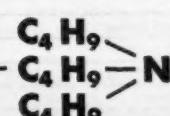
BUTYLAMINE



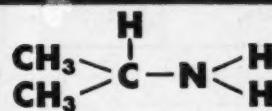
DIBUTYLAMINE



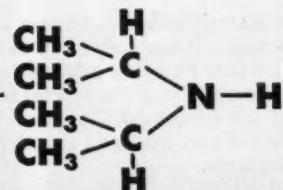
TRIBUTYLAMINE



ISOPROPYLAMINE



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Write or telephone your
Sharples man or office
for information
about these amines.



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**News about
B. F. Goodrich Chemical raw materials**

**INTRODUCING -
2 new thickening agents**

Good-rite K-707

*REG. U. S. PAT. OFF.

Good-rite K-710

*REG. U. S. PAT. OFF.

THESE new Good-rite materials are *water-white* solutions of high molecular weight acrylic polymers. They are stable and uniform and are not subject to bacterial degradation. Good-rite K-707 and Good-rite K-710 are efficient thickeners for a wide variety of water dispersions including natural and synthetic latices. The table below gives you the complete listing of properties.

PROPERTIES		
	Good-rite K-707	Good-rite K-710
Composition	NH ₄ salt of high mol. wt. polyacrylic acid.	Na salt of high mol. wt. polyacrylic acid.
Total Solids	15%	15%
pH	7-8	8-10
Color	water white	water white
Clarity	clear to slight haze	clear to slight haze
Specific Gravity	1.06	1.12
Density (lbs./gal.)	8.81	9.28
Viscosity (78°F, Brookfield model #LVF at 12 RPM, spindle number 3)	6000-12000 cps.	5000-10000 cps.

Write for technical bulletin giving helpful data on thickening of various latices, including natural rubber, GR-S, nitrile and vinyl.

Or if these two materials do not appear to meet your requirements for water-soluble polymers, send us specifications of what you need. Possibly other of our hydrophilic polymers will solve your problems. Please address Dept. E-2, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company
A Division of The B. F. Goodrich Company

Good-rite
CHEMICALS

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

PRODUCTION

tains a uniform feed rate by driving a slow-moving feeding disc.

Feed rate can be altered by a micrometer gate adjustment knob. Accuracy is said to be 3% over a 20 to 1 range.

Counting the Turns: The George W. Borg Corp. (Janesville, Wis.) has just come out with a high precision, 10-turn counting dial, the Borg Microdial 746-B. Designed for the Borg Micropot Potentiometer, the dial can be used on any multturn device having 10 turns or less, says the firm.

Neoprene Seat: Featuring a resilient neoprene seat, an improved butterfly valve is now being made by the Keystone Tool Corp. (Houston, Tex.). Because of neoprene's resilience and resistance to chemicals, the firm expects the valve to find many applications in the chemical process industry.

Extruding Steel: At the Seventh Annual New England Regional Conference of the Institute of Metals Div., American Institute of Mining and Metallurgical Engineers, Jerome Strauss, vice-president and technical director of the Vanadium Corp. of America, accented developments in the extrusion of steel. There are, he said, four installations for extruding steel in this country, and development work is still going on.

The basic problem in the process is strictly one of temperature because the metal must be heated to 2300 F. before it reaches the plastic state, and there are few dies that can withstand that temperature. As a result, until recently, it's been possible to extrude only short lengths.

France's Jacques Sejoumet, however, found that glass was a satisfactory lubricant, that it would protect the die. His first method involved placing a glass disc in the press ahead of the cylinder of hot steel. The glass melted and formed a thin film around steel to act as a lubricant and preserve the die.

Later modifications include the use of circular bats of glass fiber and sheets of glass fiber wrapped around the steel before it enters the press. It's now possible to fabricate rods of 50 ft. or more at a rate of 15 to 20 ft./second.

Some of the glass cracks off after the product cools, the rest can be removed by a quick dip in weak hydrofluoric acid.

Crystal Key: Superior materials of construction are foreseen as a result



Versatile
is the Word for
**CITRIC
ACID**

Check These Industrial Uses



For many years this non-toxic acid has served as the leading organic acidulant in foodstuffs...beverages, candies, jellies, desserts. Now, more and more industries are finding Pfizer Citric Acid and its derivatives ideal for a variety of processes far-removed from the "kitchen."

Take metal finishing for example. Because it removes oxide films with a minimum loss of virgin metal, you'll find Citric Acid used in polishing and cleaning processes. Di Ammonium Citrate is finding increasing use in the removal of iron contamination from stainless steel and rust scale from iron surfaces.

Because it forms water soluble complexes with metallic ions such as iron and aluminum, Pfizer Citric Acid serves as an excellent sequestering agent in processes where metals precipitating out of solution cause trouble...industrial water treatment, leather tanning, edible oil production, 2,4-D formulations.

Since it contains one hydroxyl and three carboxyl groups, Citric Acid as an intermediate for organic synthesis offers many interesting possibilities. And, esters of Citric Acid...several of them marketed commercially by Pfizer...offer the plastics industry non-toxic plasticizers with a range of desirable characteristics.

These varied applications may suggest mild, versatile citric as an acid or intermediate in your processing. For additional information, write:

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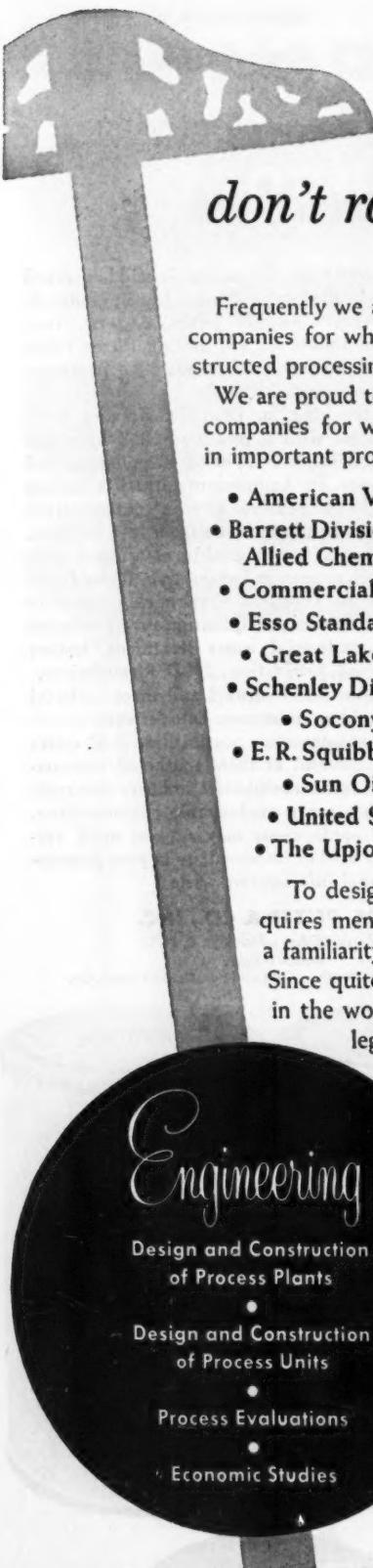
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NAMES that don't raise Questions!

Frequently we are asked: What are some of the companies for whom you have designed and constructed processing plants or units?

We are proud to be associated with the following companies for whom we are serving as Engineers in important projects:

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- Barrett Division, Allied Chemical & Dye Corporation
- Commercial Solvents Corporation
- Esso Standard Oil Company
- Great Lakes Carbon Corporation
- Schenley Distillers, Inc.
- Socony-Vacuum Oil Company
- E. R. Squibb & Sons
- Sun Oil Company
- United States Steel Corporation
- The Upjohn Company

To design and engineer these projects requires men with specialized experiences and a familiarity with the most modern practices. Since quite a variety of products is involved in the work for these companies, the privilege of being associated with them speaks well for both the versatility of our engineering staff and its 'vision' of the future.

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- Design and Construction of Process Plants
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- Design and Construction of Process Units
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- Process Evaluations
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PRODUCTION

of groundwork now being laid in the study of crystals, C. G. Suits said last fortnight at a meeting of the American Philosophical Society in Philadelphia. As Suits sees it, all metals are made up of crystals fitting together in an interlocking structure. Since there are no boundaries between separate grains of a single crystal grown to a big size, such crystals should be unusually strong.

Unfortunately, however, this has not been the case and a single crystal of a pure metal has a strength very close to zero. One explanation for this is some irregularity in the crystal. That could mean an atom of some impurity, a vacant space where an atom should be, or the rows and planes of atoms may not match in different parts of the crystal.

In any case, Suits reports that G.E.'s John C. Fisher has been able to calculate the effects of some typical lattice defects and account for the low tensile strength of some typical crystal alloys. This work makes possible for the first time a quantitative understanding of the tensile strengths of metals.

Humidity Detective: Cards that give an approximate indication of the relative humidity are now being sold by the American Technical Service (Chicago), as a quick means of determining the humidity in chemical plants, and also as a give-away promotion device for equipment manufacturers. The cards carry eight circles colored in varying shades of blue and pink. The colors are sensitive to humidity changes and serve as ready determinants of relative humidity.

Plastic Pipes: Waljohn Plastics, Inc., Industrial Div. (Brooklyn) is now manufacturing Tenite plastic pipe. It's also offering a booklet billed to be the result of "a 45,000 mile survey and months of research."

Measured Marked polyethylene pipe is the latest twist in polyethylene pipe according to the manufacturer, The Plastex Pipe and Extrusion Co. (Columbus, O.). The firm's name is impressed into the pipe in contrasting color at 10-ft. intervals. This, says Plastex, speeds up measuring procedures on the part of dealers, also simplifies installations in the field.

Crystal Furnace: Wakefield Industries, Inc. (Chicago) figures it has scored by offering a complete packaged installation for the controlled growth of organic scintillation crystals. Furnaces are housed in a reservoir with the temperature thermostatically controlled.

CHEMICAL PROCESS NEWS

PUBLISHED BY CHEMICAL PROCESS DIVISION, THE M. W. KELLOGG COMPANY

MAY 1953

NOTES ON

Ammonia

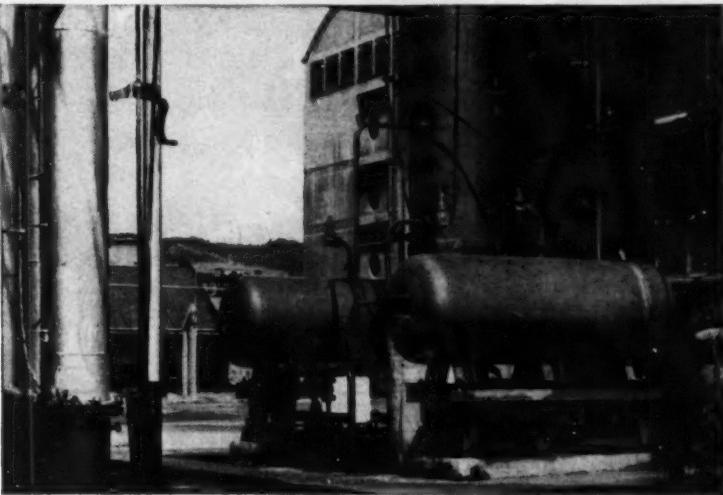
Of vital importance to the efficiency and low maintenance cost of any ammonia plant is the design of the reactor in which synthesis gas is converted to the end product.

Close control of temperature is extremely important in the reactor. To attain a reaction rate high enough to produce an economic yield of ammonia, temperatures must closely approach a critical point. Should this point be exceeded, catalyst activity deteriorates rapidly and construction materials are subject to accelerated attack by corrosion.

In the ideal ammonia converter, it is essential to remove excess heat as rapidly as possible from every point where exothermic reaction occurs. Since these points "move about" through changes in the conditions of operation and through aging of catalyst, the design of an economical converter that completely solves the problem of excess heat removal is a difficult engineering feat.

The Kellogg reactor, which employs layers of catalyst with an efficient means of cooling the gases in between, closely approaches the ideal point-by-point temperature control.

In addition to a 150 ton-per-day plant now going up on the West Coast, Kellogg has designed several others employing this type of reactor. Three large ones were built virtually simultaneously during World War II. Since they have been in operation they have continued to maintain the highest efficiency levels in the industry.



Lower Initial Investment, Decreased Operating Cost with New Urea Process

A new, low-cost method of producing synthetic urea of exceptional purity from ammonia and carbon dioxide is now available in the U. S. through Kellogg. Known as the Montecatini Urea Process—after the well-known Italian firm which developed it—the method reflects more than 30 years of experience in nitrogen chemistry.

One of the important features of the Montecatini process is the reduction in operating cost due to the virtual elimination of the corrosion problems generally associated with urea syn-

thesis. This is accomplished not only through judicious materials selection but also through the use of relatively mild operating conditions in the reaction zone in comparison with other urea processes. Furthermore, high concentration of ammonia also tends to curb corrosion.

To reduce initial investment, as well as operating costs, the process employs a partial recycle of ammonia and ammonium carbamate in liquid form in order to keep to a minimum the need for costly compressors. The lower temperatures employed eliminate the necessity for employing expensive alloy equipment in many parts of the plant.

While a total recycle plant that gives 100% yields has been piloted, the present commercially operating process makes it possible to obtain 70 and 80 wt. % conversion of NH_3 and CO_2 , respectively. Considering the fact that urea production is often in connection with the preparation of fertilizer products, the existence of excess ammonia in the tail gas provides a ready source of NH_3 for additional production of the standard sulfate and nitrate fertilizers.

The product from the Montecatini process meets the following specifications:

Nitrogen.....	46.3 wt. %
Water Content.....	0.5 wt. %
Free NH_3	0.02 wt. %
Ash.....	0.003 wt. %
Biuret.....	0.01 wt. %
Aqueous solution of 5% area.....	clear and colorless

This process employs no lead-lined equipment, eliminating any possibility of lead toxicity when urea is used as cattle feed supplement.

CHEMICAL PROCESS DIVISION

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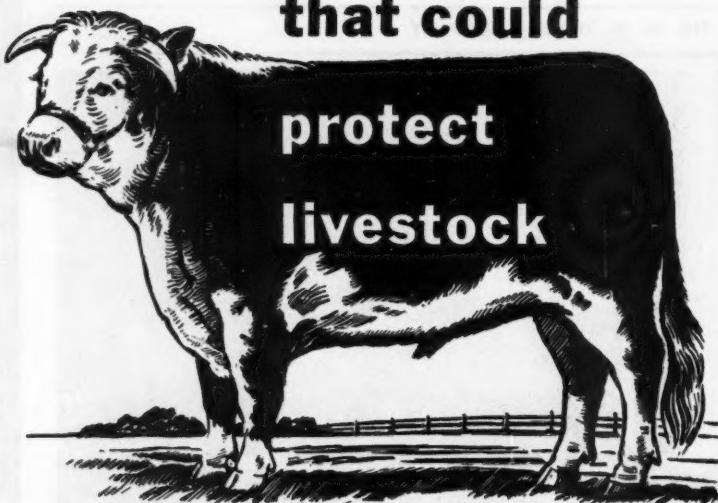
KELLOGG
W

the insecticide

that could

protect

livestock



-but couldn't be shipped

STEEL PACKAGING PROBLEM SOLVED BY INLAND LINING RESEARCH

When Chicago agricultural insecticide maker, William Cooper & Nephews, Inc., developed the formula for Cooper-Tox, every test showed it to be a superior livestock insecticide. It was a highly effective "bug-killer" but it had one drawback. When the powerful Toxaphene in Cooper-Tox came in contact with the steel in ordinary five-gallon pails, there was trouble. Not only did the steel react to contaminate the product but the product, in time, caused the pail to leak. Tin plating was not effective. Glass was too fragile and expensive for this size container.

Working with Cooper chemists, Inland's lining research department came up with a special steel container lining—IC-25. This lining proved so resistant to Toxaphene that Inland's economical steel containers, both pails

and drums, now carry Cooper-Tox safely to users everywhere. The company says, "We've tried them all and Inland's is the best and most economical lining we could find!"

If you have products which are difficult to package and ship, ask Inland to help you find the right kind of lined steel container. Our long experience in lining research may open up new markets for you as it has for others.



Inland Steel Container division of
INLAND STEEL COMPANY

6532 South Menard Avenue

Chicago 38, Illinois

PRODUCTION

Crystals are grown from the melt of any luminescent material melting between 100 and 500 C.

New Pumps: Warren Steam Pump Co., Inc. (Warren, Mass.) has added pumps with capacities up to 1,000 gals./minute, heads up to 400 ft. to its line of DF centrifugals. They can be used for organic solvents, acids, alkalis, water, brine and oil. Features: double-row thrust bearings, deep stuffing boxes, renewable case wearing rings and shaft sleeve with rubber sealing rings.

Aluminum Conveyor: Increased capacity and price reductions are the chief claims for redesigned aluminum belt conveyors to be unveiled next week at the Materials Handling Exposition in Philadelphia by the Rapids-Standard Co., Inc. (Grand Rapids, Mich.). Using a $\frac{1}{2}$ hp. motor, instead of $\frac{1}{3}$ hp., to drive the belt, capacities have been boosted correspondingly. Prices have been pared by 7 to 17%.

Flaw Finder: On-the-spot inspection for metal soundness can now be made with a new portable inspection kit put out by Turco Products, Inc. The kit makes use of Turco's Dy-Chek—the metal is precleaned with dye remover, then the penetrant dye is brushed on. Excess dye is removed, and a developer, aerosol dispensed, is applied to locate the flaws.

Drawn to Scale

Making life easier for draftsmen and plugging its product at the same time, U.S. Electrical Motors, Inc. (Los Angeles) is turning out scale drawings of its Synchronogear line for draftsmen, engineers and designers. They're drawn to exact scale, are designed to be inserted under a layout of a machine or other piece of equipment, then traced in the proper size and position.

To cover a maximum of applications, U.S. Motors is making the scale drawings in six sizes: $\frac{3}{8}$ in.=1 ft.; $\frac{1}{2}$ in.=1 ft.; $\frac{3}{4}$ in.=1 ft.; 1 in.=1 ft.; $\frac{1}{4}$ in.=1 ft.; 3 in.=1 ft. They're on punched $8\frac{1}{2} \times 11$ -in. paper so they can be inserted into a standard binder.

Three views are included for each of the 30 different motors in the line. Also provided with the drawings is a booklet listing specifications, dimensions, shipping weights and other pertinent information. The firm figures that besides simplifying the layout man's job, the drawings will save many man-hours—and sell more U.S. motors.

To know how good valves can be, install valves
that are known to be good



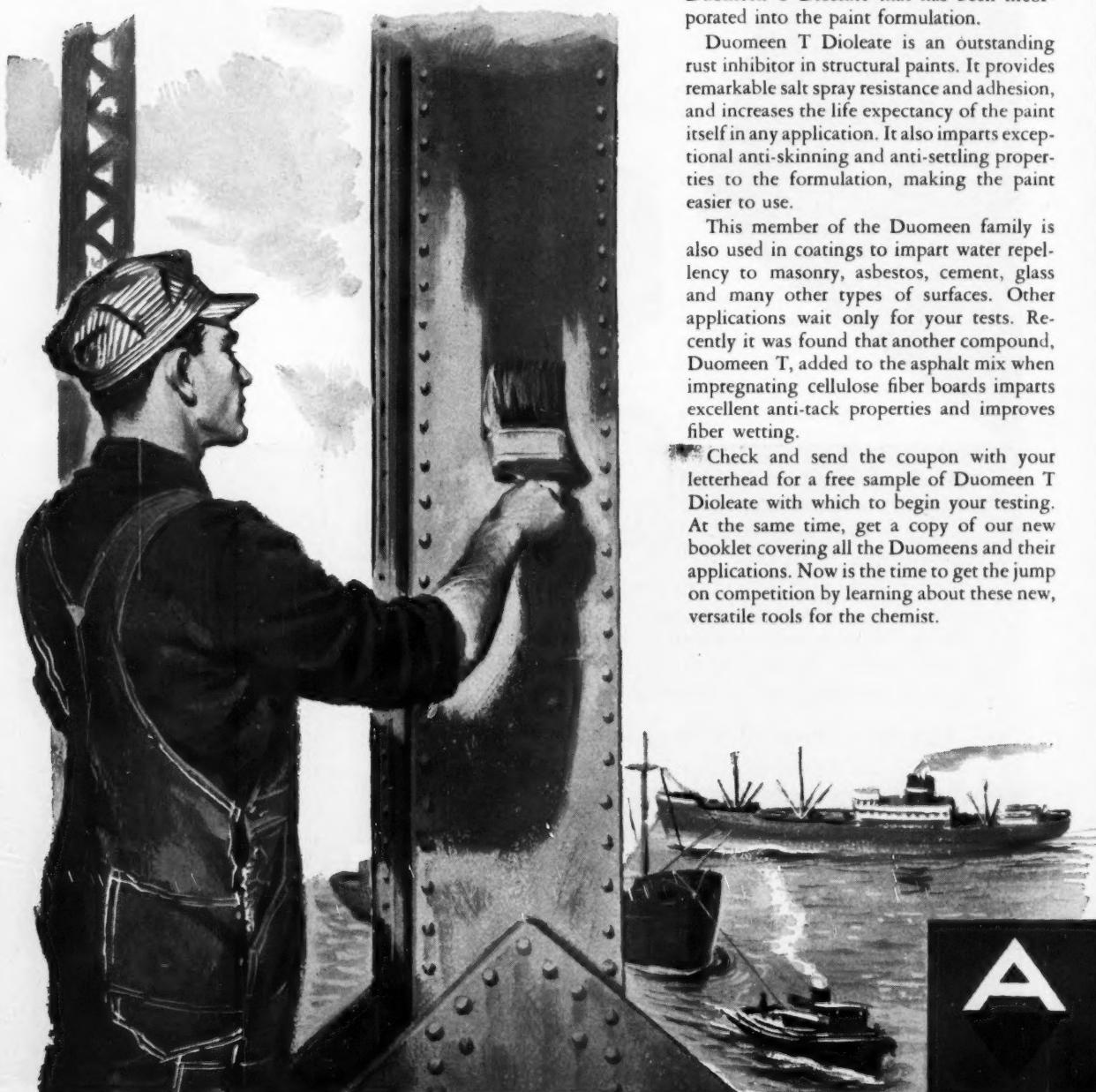
line. You can buy
flow control valves
But possibly you have never had
valves engineered to meet specific
service conditions under which they
must operate. To find out how good
valves really can be, install Powell.

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POWELL

BRONZE, IRON, STEEL AND CORROSION-RESISTING VALVES

New products and profits with Armour Chemicals



Paint that hates water stops rust!

A primer coat of red lead paint is designed to stop corrosion. Usually, the paint job lasts about five years. Then it must be done again.

But this job will last considerably longer than most. This paint *hates* water—and it makes the metal beneath it non-wettable to water. The reason is the minute amount of Duomeen T Dioleate that has been incorporated into the paint formulation.

Duomeen T Dioleate is an outstanding rust inhibitor in structural paints. It provides remarkable salt spray resistance and adhesion, and increases the life expectancy of the paint itself in any application. It also imparts exceptional anti-skidding and anti-settling properties to the formulation, making the paint easier to use.

This member of the Duomeen family is also used in coatings to impart water repellency to masonry, asbestos, cement, glass and many other types of surfaces. Other applications wait only for your tests. Recently it was found that another compound, Duomeen T, added to the asphalt mix when impregnating cellulose fiber boards imparts excellent anti-tack properties and improves fiber wetting.

Check and send the coupon with your letterhead for a free sample of Duomeen T Dioleate with which to begin your testing. At the same time, get a copy of our new booklet covering all the Duomeens and their applications. Now is the time to get the jump on competition by learning about these new, versatile tools for the chemist.

A



Arquads® stop static build-up on plastics—and eliminate a dust-trap!

As static builds up on plastics, like this radio, it makes the surface very attractive to dust—and hard to clean. Women and manufacturers want a way to beat the static. Can it be done? Low concentrations of Arquads do the trick!

Arquads are Armour's quaternary ammonium salts of fatty acids. Recently, one of the largest chemical companies tested a number of Arquads as destaticizing agents for polystyrene. In their opinion, Arquads 12 and 18 are two of the most effective destaticizing agents that they have tested. Very small amounts of both were effective at room temperature, and Arquad 18 also provided anti-static protection for polystyrene wall tiles held at 130°F. for one week after coating with the Arquad solution.

Although similar testing indicated that both Arquads are effective destaticizing agents on Saran plastics, caution must be exercised in using the Arquads in any textile-type application where discoloration of Saran due to extreme heat or light exposure may be important. For free samples of both Arquads, send the coupon with your letterhead.



Neo-Fat® 14 can make your shaving cream better—at no increase in cost!

Many free-lathering soaps for products like shaving cream are also irritating to the skin. You have to add ingredients to make up for this tendency—or find a formulation that probably doesn't lather as well but that also doesn't irritate. Neo-Fat 14 is a raw material that offers outstanding sudsing properties and wetting action—and no skin irritation!

Neo-Fat 14 is a remarkably high purity myristic acid—over 94% pure—produced by an Armour-developed fractional distillation process. It contains less than 1% of the short-chain acids that are believed to be the cause of irritation. Neo-Fat 14 is only one of six fatty acids fractionated from coco oil. These six acids offer you far higher fatty acid purity than was ever before available—92% or better. This means you are no longer forced to buy a mixture of up to nine different acids,

all with differing specific chemical and physical properties, in order to get one you really want. So, by using Neo-Fat 14 in your soap formulations, your choice of raw materials improves your finished product—at competitive prices!

Try a free sample of Neo-Fat 14 in your formulation. It will also pay to investigate the rest of the Armour line of coco fractions. Send the coupon today with your letterhead for the sample and a copy of our booklet, "Coconut Oil Fatty Acids." Find out for yourself how high purity can mean economy and better products for you.

Two New Ketones

From time to time new chemicals are made available for which we have indicated uses. While they are first offered in sample or pilot plant quantities, often enough industrial uses have been quickly found to make these chemicals available commercially.

At this time two new chemicals are being offered for your testing. Stearone and Laurone are higher molecular weight ketones, unaffected by high temperatures, acids, alkalis and other strong reagents. In short, they are particularly inert and subject to only a few reactions, under rigorous conditions. They have a wide range of compatibility with many waxes, such as high-melting vegetable waxes and microcrystalline and paraffin waxes. They are also compatible with triglycerides and fatty acids such as stearic.

These properties suggest their use in such general fields as coatings, finishes and waxes. Particular applications for Stearone and Laurone might include their use as ingredients in wax and polish formulations, mold release agents, resin lubricants and anti-blocking agents, flattening agents for paints and varnishes, ingredients in water-proofing formulations, components in electrical insulations, protective coatings, cosmetic formulations, lubricants for vinyl calandering and extrusion, and anti-blocking agents for coating and films.

Send the coupon for free samples and further information.

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Please send me:

- Duomeen T Dioleate sample
- Duomeen booklet
- Arquads 12 and 18 samples
- Neo-Fat 14 sample
- "Coconut Oil Fatty Acids"
- Ketone tech. bulletin and samples

Name _____

Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

W

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CHEMICAL PROBLEM . . .

. . . to produce a superior thinner that would make paint easier to apply, and obtain maximum coverage without harming the quality of the finish.

SOLUTION . . .

. . . Hercules® Turpentine. Available for over 30 years, it is rated as the highest-quality type thinner for oil paints. Hercules Turpentine meets U. S. government specifications for pure spirits of turpentine. The first turpentine to be packaged in cans, it is available in pint, quart, gallon, or five-gallon orange-and-black containers.

RESULT . . .

. . . painted surfaces that look better and last longer. Many painters and householders prefer Hercules Pure Spirits of Turpentine because it blends easily and evenly, keys the paint to the surface. Representing less than two cents of the paint dollar, this high-quality turpentine is sound insurance against paint failures caused by inferior thinners.



Hercules' business is solving problems by chemistry for industry . . .



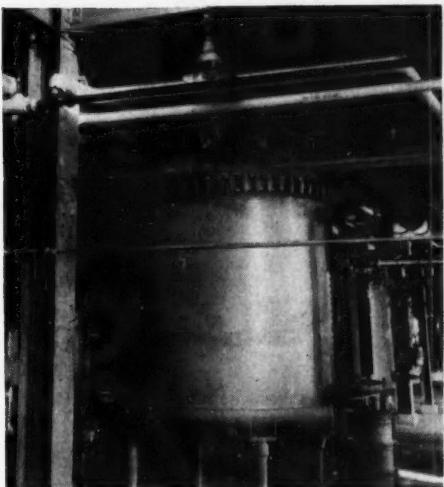
. . . insecticides, adhesives, soaps, detergents, rubber, plastics, paint, varnish, lacquer, textiles, paper, to name a few, use Hercules® synthetic resins, cellulose products, chemical cotton, terpene chemicals, rosin and rosin derivatives, chlorinated products and other chemical processing materials. Hercules® explosives serve mining, quarrying, construction, seismograph projects everywhere.

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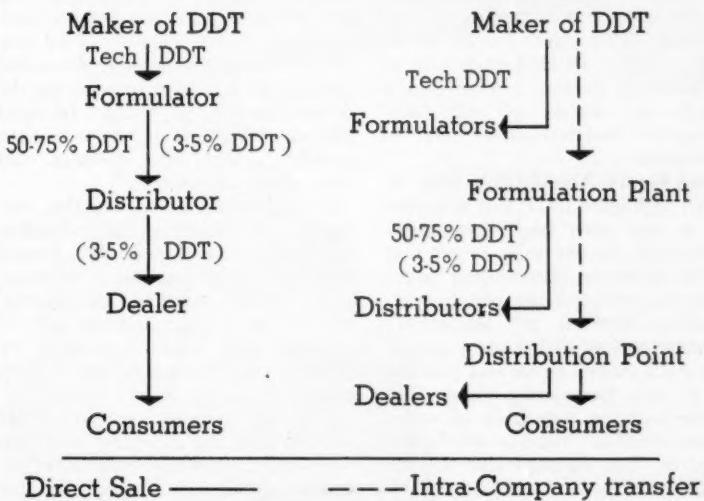
DISTRIBUTION



From Here . . .

Story Begins
on Page 58

Two Ways to Distribute DDT

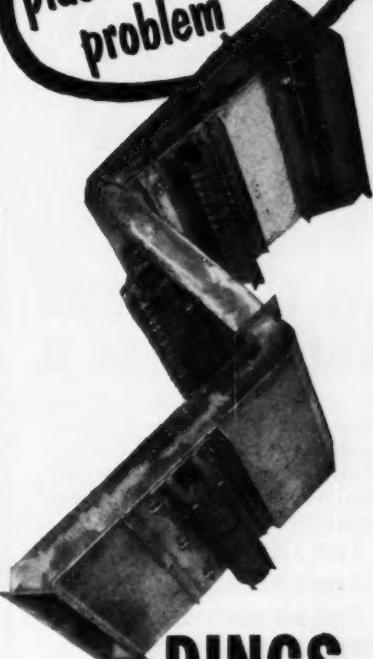


... To Here



May 16, 1953 • Chemical Week

Solves a tough
plastics production
problem.



DINGS

"SUPER" 3-STAGE MAGNETIC HUMP

WHEN one of the nation's largest plastic manufacturers was confronted with the problem of separating iron contaminated polyethylene pellets from iron-free pellets they came to Dings with their problem. The multiple pass magnetic hump, shown above, equipped with 3 powerful, permanent, non-electric Dings Alnico Magnets removes all impure pellets.

Dings has a solution for your tramp iron problem, too — whatever, wherever it may be. See your representative and write DINGS MAGNETIC SEPARATOR CO., 4768 W. Electric Ave., Milwaukee 46, Wis., for Catalog C-5000B.



NH 152

RINGS • **Magnets**

FOAM'S A THIEF



with DOW CORNING ANTIFOAM A

Use productive capacity now wasted on foam; cut processing time with Dow Corning Antifoam A, the silicone defoamer that works at concentrations in the range of:

- 3 ppm δ in recirculating cooling brines
- 2.5 ppm δ in bottling soft drinks
- 2 ppm δ in varnish cooking
- 200 ppm δ in textile resin backings
- 0.4 ppm δ in steel pickling baths

Effective at remarkably low concentrations in a wide variety of foamers, Dow Corning Antifoam A compound is harmless physiologically. It can be used as received, mixed with one of the foaming ingredients or dispersed in a solvent for industrial applications.

Equally versatile and more easily dispersed, Dow Corning Antifoam AF Emulsion is a water dilutable defoamer containing 30% Antifoam A. Originally designed for use in the food processing industries, Dow Corning Antifoam AF Emulsion has a wide field of industrial usefulness.

see for yourself!

mail coupon TODAY for
free sample

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Dow Corning Corporation
Midland, Mich., Dept. BS-5

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Two Ways to Sales

The high tide of prosperity often hides rocky differences in sales policy and approach—differences that become quite apparent when high sales recede and each company is fighting for its share of a limited market. That's why there's much discussion today among insecticide executives and salesmen on this basic question: Should insecticide manufacturers also formulate end products?

It's an old question—and one that has been answered differently by equally successful firms. But in 1953, a price-poor year for insecticides, the differing decisions may well hold the germs of long-term success or failure for the companies involved.

Moreover, last week's report (*CW Newsletter*, May 9) that Mathieson Chemical has bought insecticide-maker John Powell & Co. adds special emphasis to the differences: Reason: Mathieson has been drifting steadily toward a formulate-it-yourself sales policy, while Powell credits a large part of its fivefold growth in five years to its firm resolve that a manufacturer should sell only technical-grade materials—and only to formulators.

Two Routes: The chart on page 57 (which highlights DDT, but is applicable to any other basic insecticide) summarizes the two sales routes that can be followed. Convincing arguments for both policies can be presented—as testified by Mathieson's statement to CW that it plans to preserve both Powell's previous position and its own formulating plans: "It'll be like carrying two pails of water on one shoulder," says a Mathieson executive, "but we think that we can do it."

Mathieson, itself, is actually in an in-between spot. It sells to formulators extensively and formulates for itself, but only in the geographical areas where it can process and offer—for final sale through dealers and distributors—a complete line of farm chemicals, including fertilizers, herbicides, insecticides and fumigants.

More extreme examples of self-formulators are California Spray Chemicals, with 43 local mixing plants scattered from coast to coast; Niagara Spray, with 12 domestic plants; and Geigy, with 10 units.

These facilities take the technical materials on intracompany transfers from the central manufacturing plants and add the inert diluents for dusting powders, the wetting agents for wetting powders, and the solvents for dilute insecticide or herbicide sprays.

They compete, on a direct basis, with formulating companies such as Central Chemical at Hagerstown, Md.; Heckathorn & Co., Richmond, Calif.; Taylor Chemical Works, Aberdeen, N.C.; McConnon & Co., Winona, Minn.; and an estimated 300 other semimanufacturing firms. Salesmen representing both groups call on the local farm dealers and distributors. And, in areas where the branch-formulating plant is particularly well entrenched, the insecticide maker may even sell directly to the farmers themselves.

Customer Competitors: At the other extreme are such companies as Powell and Hercules. The latter, for example, sells only bulk toxaphene; before farmers can use the chemical, it must pass through the hands of formulators.

The attitude of these companies is still the predominant one in the industry. The recent explosive growth of insecticides, plus the desire to save on freight and to meet localized conditions, made it simpler to formulate near the farm market by fostering the development of a myriad of local processors. Such companies were often already in the farm business, and knew their way around.

For better or worse, say the non-formulating producers, this distribution pattern developed. The formulators are today the basic customer group for the insecticide manufacturers. And it is a commercial risk to compete with these customers by building local mixing outlets in their areas.

This risk, they say, is twofold. It involves both the spreading of inventory burdens and the question of effective salesmanship through local or national sales forces.

Stock Control: The nonformulating manufacturers claim, in part, that their type of distribution is more sensitive to supply-demand conditions. There is less danger of excessive industry oversupply when the steps between basic insecticides and finished formulation are watched over by profit-making purchase-sales transactions. When inventory reaches an uneconomical point at each stage, the orders immediately stop flowing and production slows down. There is no disastrous confusion between an overambitious production department and a sales force that knows it will be a bad year, but hates to admit that it can't sell the goods in the field.

The formulating producers recognize this danger. "We use business discipline to keep us in line," says

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DISTRIBUTION

one executive. "What it calls for is a high degree of interdepartmental communication. And if we have that, we think we can keep a better control over the national inventories than those who depend on the daily order record."

The other factor, the relative strength of hometown versus national sales forces, is difficult to gauge. Chances are that the national forces will be better trained technically. But during competitive years such as this, salesmen who "know the boys" can often swing a sale on local knowledge alone. "We'll match our customers' salesmen against our competitors'

'company men' anytime," says one insecticide maker. "They may not know their chemistry, but they sure know their farmers." Not content with this situation, the manufacturer-formulators are sure that they can develop sales forces that know both their chemistry and their farmers.

The insecticide industry, however, is still a young, immature complex, admit both sides. And it will take a few more tough selling years to determine which distribution pattern is best for the makers, the distributors, and the farmers. Meanwhile, as in every development period, all possible experiments are being tried.



FIRST JOB: Young Chew, seated behind PWR's Charles Loring, starts . . .

Half Century of Peddling

It was 1903. America's first contact sulfuric acid plant was only two years old. In Washington, Teddy Roosevelt was still dickering for the right to build the Panama Canal. And in New York City, no less than six employers were subjected during that year to the problem of dealing with a headstrong, independent 18-year-old named John A. Chew, fresh from a deputy-county-clerk's job in Jefferson County, West Virginia. The seventh firm, however, had better luck. By happenstance it was a chemical concern, and Chew's 50 years in chemical commerce had its start.

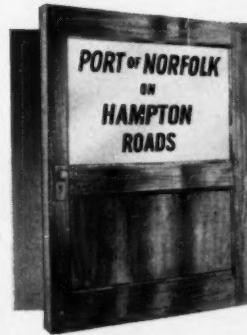
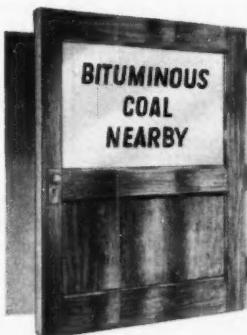
Week after next, on May 26, the friends and adversaries of Chew, still the stormy petrel of chemical selling, will mark his half-century of peddling with a testimonial dinner at New York's Hotel Roosevelt.

Slightly embarrassed by all the at-



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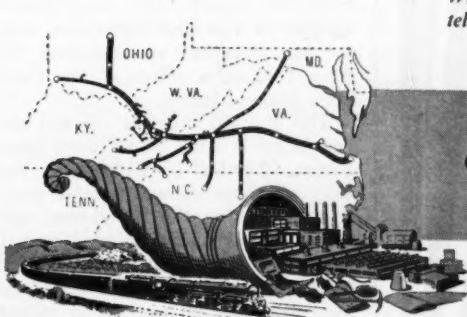
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tention, the about-to-be guest of honor says with bewilderment; "I don't understand it. There'll be men there whose prices I've been undercutting for years!" These paying guests will undoubtedly be wishing that Chew's first job had been in some other industry than chemicals, but none could say that he hadn't been eminently successful in the fluid-priced risk-taking world of chemical reselling. His John A. Chew, Inc. has withstood the pressures of depression, war and readjustment.

Yet in a sense, the banqueters will be toasting a passing era. Technically trained manufacturers' sales forces, organized on a nation-wide basis and armed with relatively inflexible price schedules, are slowly crowding into the activities of free-wheeling independents like Chew. His son, Robert, recognizes the trend, is side-stepping it by adding new experimental lines of activity to his father's company.

Who's Du Pont? But during the early, lusty years of the chemical industry, men like the elder Chew provided the leaven in the dough; their ferment has always been as necessary as the solder ingredients of research, engineering and finance.

Chew's first job was with the New York branch of Philadelphia's Rosengarten & Sons, later the Powers-Weightman-Rosengarten Co., and still later absorbed into Merck & Co. His salary was \$12/week—which was a big improvement over the \$10/month Jefferson County had been paying him. Besides, a three-course meal could be bought for 15¢.

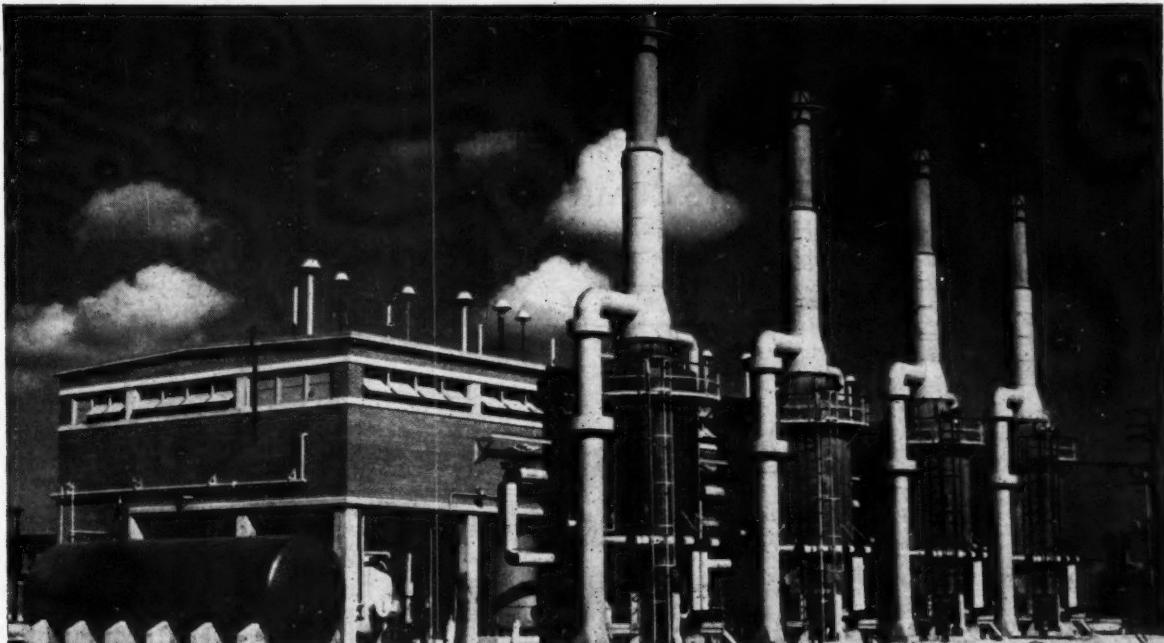
A fellow employee was a young man named John Queeny, who was, in his spare time, putting together a company to be called Monsanto Chemical. Dow was still a struggling firm out in Michigan. And Du Pont was heavy in explosives, but not much else.

General Chemical, Grasselli, Solvay, and a few other companies were laying the groundwork for a heavy-chemical industry, but the main strength of domestic chemical operations lay with the pharmaceutical and fine chemical houses. The true heavyweights of chemical commerce were the import-export agencies and the New York sales offices of the European manufacturers.

The business heart of the industry was along William St. in lower Manhattan. Chemical salesmen made their calls via horse-drawn trolleys and—later—by riding the brand-new subways. It was a raw, rugged period, marked by bare-fisted price wars and unsophisticated realism. "The boys used to divide up markets in solemn

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agreements," recalls Chew, "but the pacts only lasted as long as it was convenient." In this atmosphere, young Chew advanced rapidly, serving as a vice-president or sales manager for a succession of firms.

At the Bottom: World War I, however, tended to mature the chemical commerce. It provided the impetus for tremendous growth, and the companies that survived the postwar shake-out have, in the main, progressed steadily ever since. The depression provided just a temporary halt in this development, and at the bottom of that period, in 1932, John Chew went into business for himself. "It was an ideal time," he recalls. "There was nowhere to go but up."

From the start, his firm was a financial success. As a "merchant" of chemicals, he bought on his own account, sold at whatever price he could get. Through both lull and boom, companies like his provided a "pricing" service, accurately reflecting the true levels of supply and demand.

And now, at the end of 50 active years, sharp-tongued, fast-thinking Chew can say, with meaning, "It's been fun."

Sales Changes

Here are a few of the recent changes in distribution patterns made by chemical sales managers:

• In Los Angeles, the Flek Corp. has been made the exclusive warehousing distributor for M. W. Kellogg's Kel-F molding powders on the West Coast.

• The Plax Corp. (West Hartford, Conn.) has established a national distributor organization to handle polyethylene, polystyrene and methacrylate rods, tubing and sheets. The 10 new distributors will carry stocks of Plax products.

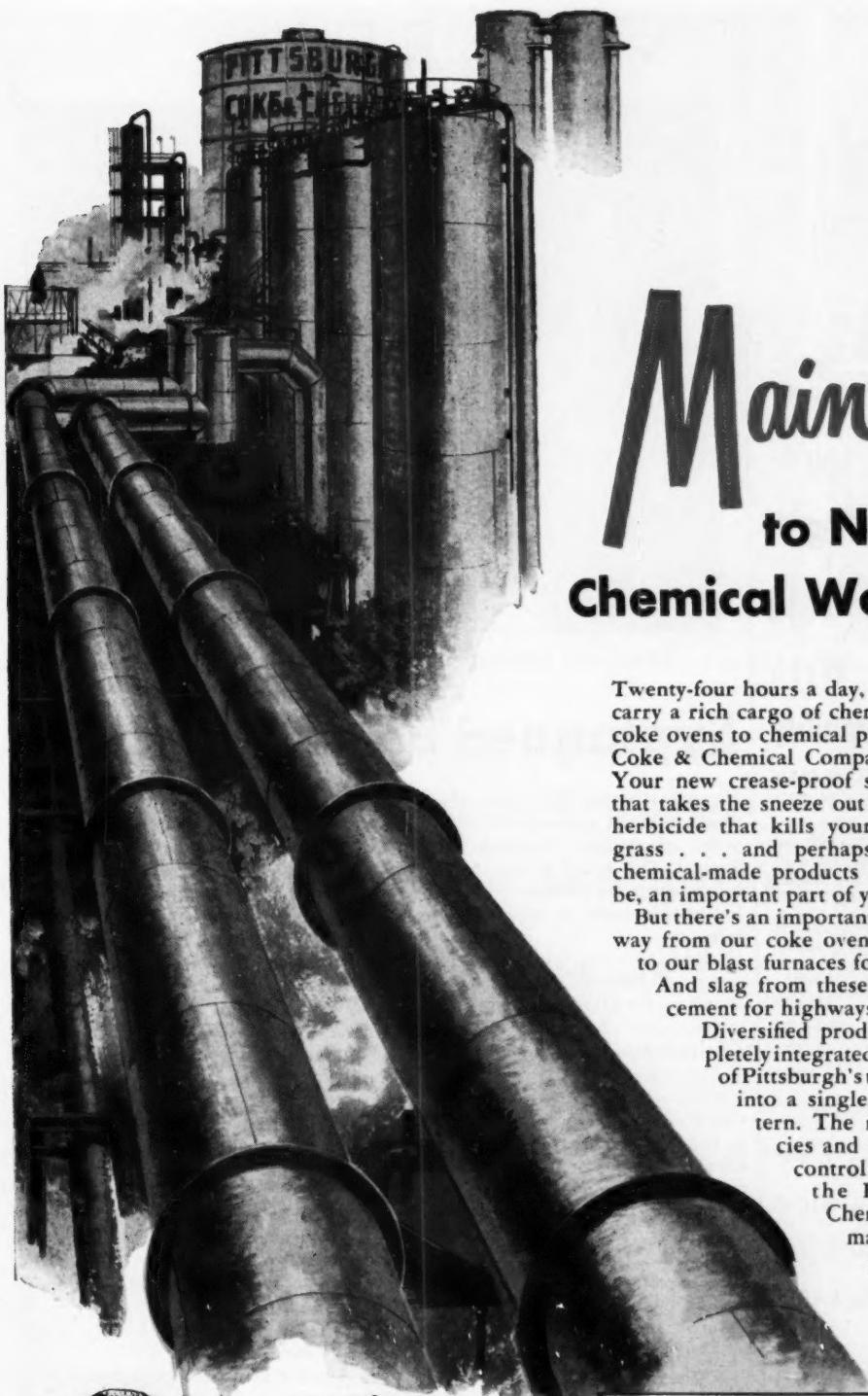
• Colton Chemical Co. (Cleveland, O.) has also established stock distribution points through three regional agencies. Polyvinyl acetate and alcohol products will be handled.

• Monsanto's Texas Div. Midwest sales office has moved from Akron, O., to the firm's Cleveland quarters.

• Titanium Zirconium Co. (Flemington, N.J.) has appointed the Chemical Div. of New York's Frank Samuel & Co. as its distributor for TZ's complete line of zirconium salts.

• Philadelphia's Kessler Chemical Co. has chosen R. E. Flatow & Co. as its San Francisco sales agent.

• A district sales office in Cleveland will replace a branch office in Detroit for the Plastics Div. of the Celanese Corporation of America.



Main Line to New Chemical Wonderlands

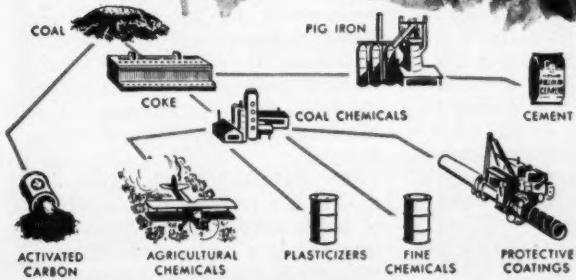
Twenty-four hours a day, these giant steel pipes carry a rich cargo of chemical-laden gases from coke ovens to chemical plants of the Pittsburgh Coke & Chemical Company. Final destination? Your new crease-proof summer suit, the drug that takes the sneeze out of your hay fever, the herbicide that kills your weeds but not your grass . . . and perhaps 100,000 other coal chemical-made products that are, or soon will be, an important part of your life.

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Century 1005 Distilled Oleic	Titre 3- 5°C
Century 1010 Distilled Oleic	Titre 8-10°C



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HIDES AND TANNING DRUM: A chestnut blight opened the door.

Syntanned Soles March On

Very shortly, the U.S. Quartermaster Corps will test another newly fledged series of syntans (synthetic tanning agents). This is but a part of a much larger program wherein even Korean battlefields serve as experiment centers.

Under a plan set up four years ago, dozens of different syntans have been tested by the QMC at its Philadelphia laboratories,* field-tested by combat men in Korea. Primary goal is a satisfactory substitute for quebracho, imported major vegetable tanning material. In its quest, however, the QMC is not overlooking cheaper or more efficient replacements for any current tanning compound.

Contrary to the old Napoleonic adage, an army still moves on its feet. Hence, the chemical and leather industries—striving for a tanning self-sufficiency, should a fully fanned war shut off imports, and spurred by a multimillion-dollar armed forces leather market (\$17 million for shoes alone in 1951)—are working hand in glove with government researchers.

Syntan Synod: The syntans now to be tested by the QMC are from a new Chemtan Co. (Port Washington, N.Y.) series, have already shown promise for use in upper leathers. Some of these syntans were developed as fillers following chrome tannage;

others, combining resins and iron salts, for tanning by itself.

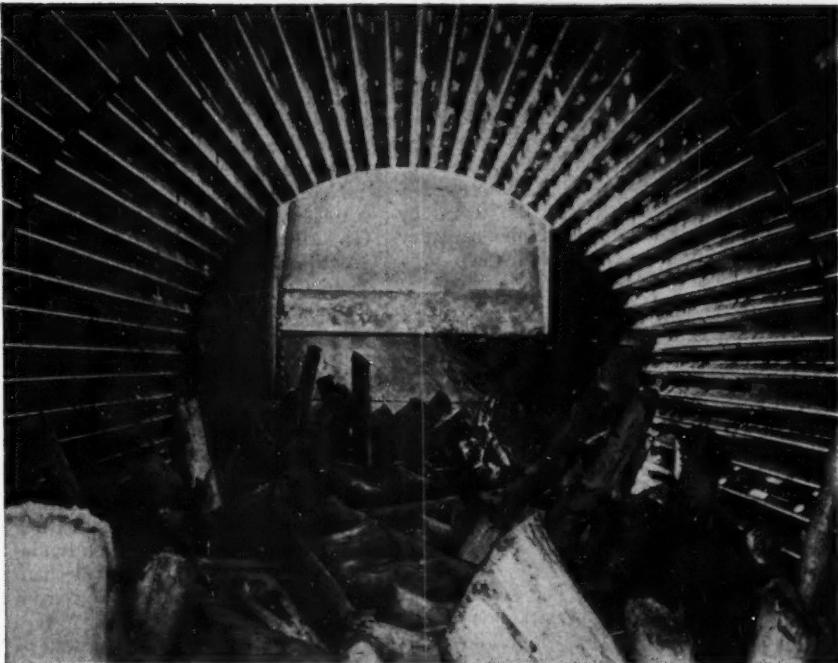
Designated T-3, T-6, R-6 and R-33, these resin syntans are but a few of Chemtan's new compounds. A comparative but conspicuous latecomer (1948), Chemtan has a singular approach. In cooperation with Jacques Wolf & Co. (Passaic, N.J.), Chemtan developed its R series of dicyandiamide-derived syntans. These amine-formaldehyde condensates are high-polymer resins that can nevertheless penetrate hides and produce the desired fullness in leathers. (Generally, polymers as large as the DiCy's lose their solubility and ability to penetrate.)

Main advantage of DiCy-tanned leathers, avers Chemtan's Rolf Quarck, is their resistance to change and rot; and while other types of resins are useful, says Quarck, Chemtan figures to have its hands full with DiCy derivatives for quite a while.

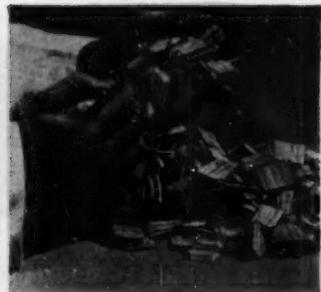
Another syntan recently tested as a replacement for chrome in upper leather is known as Skelt. Originally a German development, it is now made by Du Pont, is based on sulfonyl chloride. QMC researchers found Skelt-tanned hides "generally satisfactory."

An original Du Pont development is G-942, a resin filler. A copolymer of maleic anhydride and styrene, it is intended as a replacement for vegetable tan in the chrome tan-vegetable

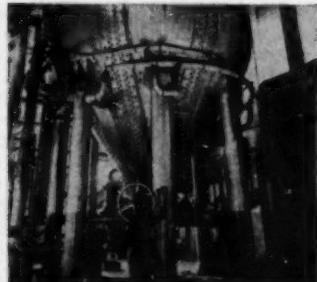
* Here, a typical test is storing leather in different chambers where climates ranging from the Arctic to the Sahara are simulated.



A trip through the barking drums is the first step for this southern pine, on its way to becoming pulp at Hudson's giant Florida Multiwall Sack mill. Logs are tumbled until stripped of all bark.



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RESEARCH

retan process for upper leather. Said to enhance the leather's pumpiness and mellowness, G-942 is not considered a necessity, but more of an upgrader.

Politan, a polyhydric phenolaldehyde made by John R. Evans & Co. (Camden, N.J.), was also tested by QMC, shows promise as an emergency substitute tan for upper leather.

But one of the earlier entries, Rohm & Haas Co.'s (Philadelphia) Orotan, is still a leather tanning luminary of first magnitude. In commercial production before the QMC started its evaluation program, this material is a sulfonated phenol-formaldehyde condensation product.

After testing 16,000 pairs of shoes with Orotanned soles, QMC researchers concluded that R&H's syntan produced satisfactory leather (CW, Oct. 20, '51).

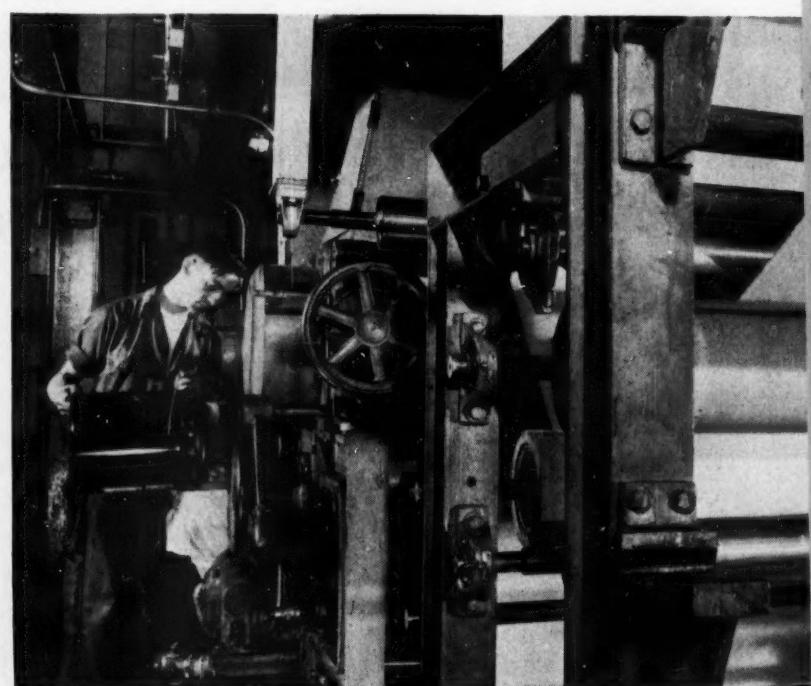
Wider Horizons: The multimillion-dollar government market is but a small part of the whole, however.

Within this outer realm of civilian markets, the syntan search is an offshoot of a larger over-all quest for new and improved tanning precursors, agents, assists and finishes.

Here, some additional active researchers are American Cyanamid Co., Arkansas Co., Inc. (Newark, N.J.), Monsanto Chemical Co., Marathon Corp. (Rothschild, Wis.) and Diamond Alkali Co.—plus a multitude of others dealing in natural tanning compounds.

Meanwhile, workers at the U.S. Dept. of Agriculture's Eastern Regional Research Laboratory (Wyndmoor, Pa.) are actively investigating different sources of natural tanning agents. Other technologists at Lehigh Univ. (Bethlehem, Pa.) and Cincinnati Univ. (Cincinnati, O.) are carrying on fundamental research on the actual mechanisms of tanning, which still remain quite a mystery.

Plastics and other substitutes, of



Glass Cloth Gets Silicone Overcoat

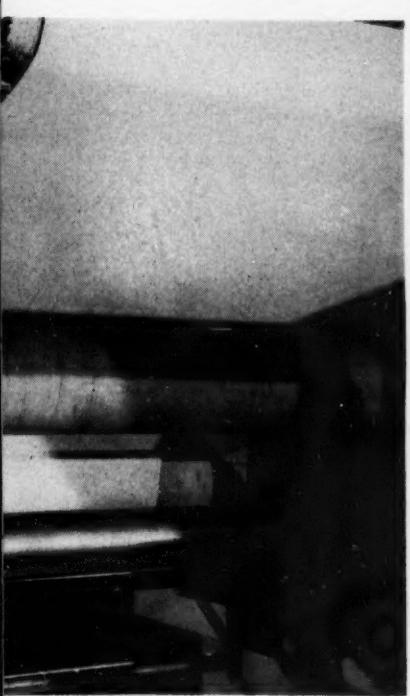
OPERATOR POURS silicone paste as Mica Insulator Co. (Schenectady) kicks off tests on new General Electric silicone rubber, SE-100. Glass fiber cloth passes over the rollers (*above*), through SE-100 paste, between more rollers (where excess paste is squeezed out) and finally through

a drier. The impregnated cloth will then go to Mica's coated cloth customers for field testing. Most promising applications to date are for mandrel-wrapped heater ducts (piping hot air in jet engines), insulating sleeves (electrical leads), gaskets (reciprocating airplane engines) and trans-

course, are making inroads into the leather trade. But many, like QMC's Leather Section Chief (Research & Development Div.) Charles Mann, feel there is no cause for alarm, for "science has yet to come up with a (satisfactory) substitute for leather itself. None of the synthetic materials can duplicate all of the good characteristics of leather."

The syntan fever, of which these developments are manifestations, started several years ago when the chestnut blight cut off our native tannin supply. In the light of a promising new natural supply, canaire from the Southwest, some pessimists feel that syntans will serve as little more than a temporary measure to tide the industry over. But to others, who view the syntan's progress as inevitable, the foot in the door wears a mighty sturdy brogan.

Gas Desiccant: From field-testing to market goes Aluminum Co. of America's (Pittsburgh) new natural gas desiccant, Activated Alumina H-151.



former insulation. Results on the elastomer alone, reports GE, favorably point toward its use as a coating for glass sleeving and glass served wire, and as encapsulation for motors, coils and transformers. SE-100 is intended as a replacement for GE's SS-07 and, GE hopes, for Dow-Corning's DC-250. But Dow-Corning, though unwilling to confirm it, is, reportedly, also testing a new silicone rubber, DC-6708A.

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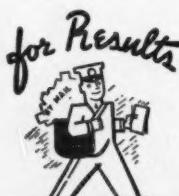
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RESEARCH

a specially prepared amorphous gel in ball form. Studies indicate high sorption and long life for the product, declares Alcoa.

Summer Symposium: This year, the Fifth Annual Oak Ridge Summer Symposium to be held Aug. 24-29, will be devoted to mesons, ultrahigh-energy phenomena and electromagnetic radiations. Further information may be obtained from the University Relations Div. of the Institute, P.O. Box 117, Oak Ridge, Tenn.

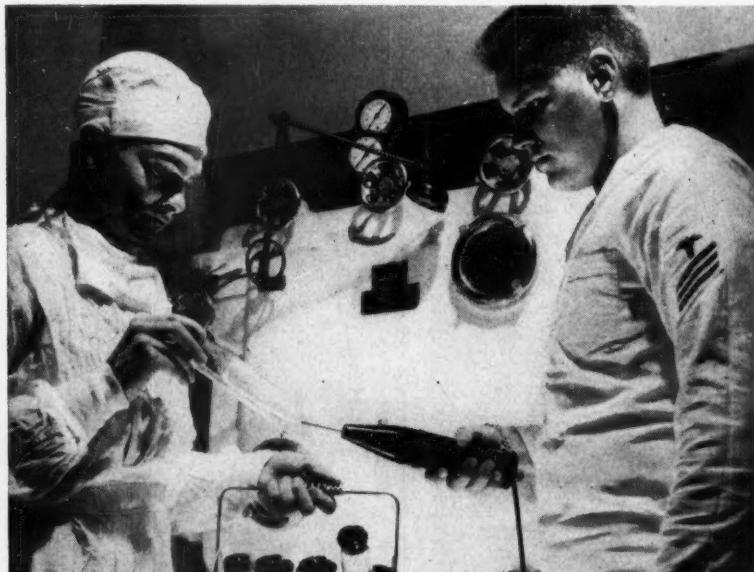
Diagnostic Aids: Warner-Chilcott Laboratories (New York) has just released two new blood diagnostics, Fibrinogen and Diagnostic Plasma, to physicians and lab technicians. They are to measure clotting factors.

Cabot Housewarming: Last week, Godfrey L. Cabot, Inc. held open

house in Cambridge's (Mass.) "research row" (actually, 38 Memorial Dr.). The occasion: official opening of its new research laboratories. Compounding, physical testing, pigments application, ceramics, organic, analytical, electron microscope, physical research and pilot plant laboratories will occupy the red brick building's 26,000 sq. ft. of floor space.

Without Water: Heyden Chemical Corp. has just come up with a commercial process for making solid formaldehyde. Tradenamed Superfyde, the product contains less than 0.1% water, is similar to paraformaldehyde in chemical structure but has a higher molecular weight and melting point.

Greater Stability: Halane, a new organic chlorine compound, is the latest offering from Wyandotte Chemicals Corp. Chemically dichlorodimethylhy-



Tissues in Technicolor

THERE'S BEEN A CHANGE in the biology lab: from formaldehyde to plastic packaging, from yellowed jars to streamlined clear acrylic blocks. No longer will budding pathologists have to trek through drab, dead-smelling chambers peering at discolored misshapen biological specimens packed in jars of formaldehyde.

Responsible for this new note are two Bryn Mawr College scientists, Max Strumia and Ivan Hershey, who recently evolved the technique. Briefly, this is how it works: a selected specimen (in this case, an experi-

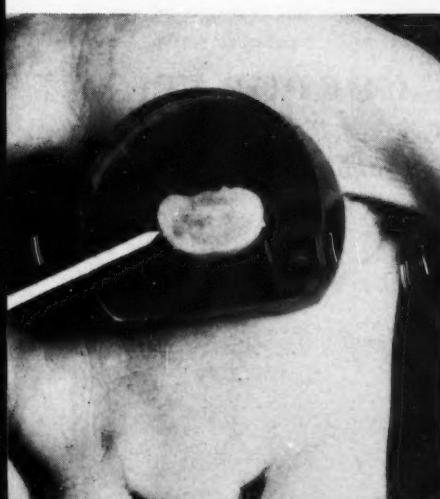
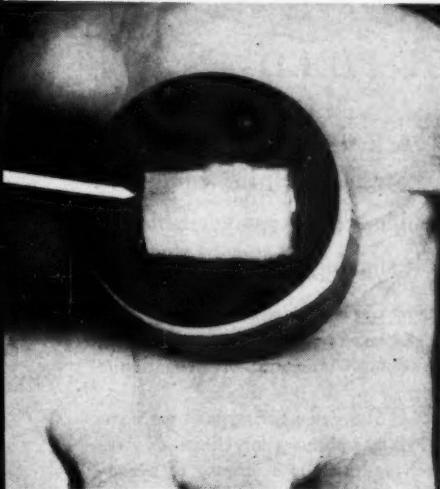
mental bone graft) is first frozen in a block of ice; the block is dried under high vacuum at low temperature (*above*); the freeze-dried specimen is then impregnated with acrylic plastic (*top right*) and finally, encased (*lower right*) in ethyl methacrylate, polymerized in successive layers to produce a suitable block.

Averred not only as more presentable, these specimens are also said to provide a truer preservation of color and form than previous attempts with plastics and former methods with formaldehyde.

dantoin, it is a white powder containing 66% by weight of available chlorine. Said to have high stability (losing only 2% of available chlorine after storage at 140 F for 14 weeks), Helane is being promoted for use in processes where controlled release of chlorine is important.

King Cotton: Researchers at USDA's Southern Regional Research Laboratory at New Orleans recently discovered a new use for cotton; this time, in the ion-exchange field.

Studies show that phosphorylated cotton (cotton reacted with phosphoric acid and urea) and sulfoethylated cotton (cotton treated with 2-chloroethylsulfonic acid) are good cation-exchangers, while aminated-imidized cotton (aminized cotton reacted with ethylenimine) and quarternary aminated cotton (diethylaminoethylated cotton treated with methyl iodide) make good anion-exchangers.



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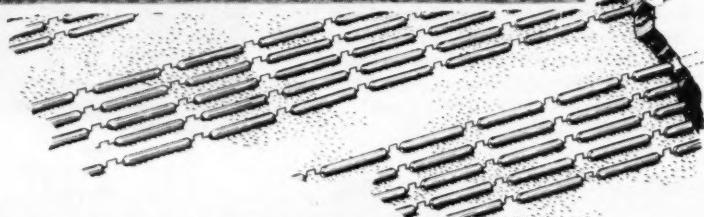
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Picture of a NATURAL GAS STORAGE FIELD

Managements faced with the problem of increased peak demands for natural gas beyond normal supply capacity, as well as providing stand-by capacity, can benefit from Stone & Webster Engineering Corporation's knowledge in this field.

For the Washington Gas Light Company the Engineering Corporation designed and constructed underground high pressure natural gas storage facilities with propane storing and

mixing equipment, giving the Company, in addition to its other facilities, the equivalent of 100 million cubic feet of gas available for stand-by and peak shaving.

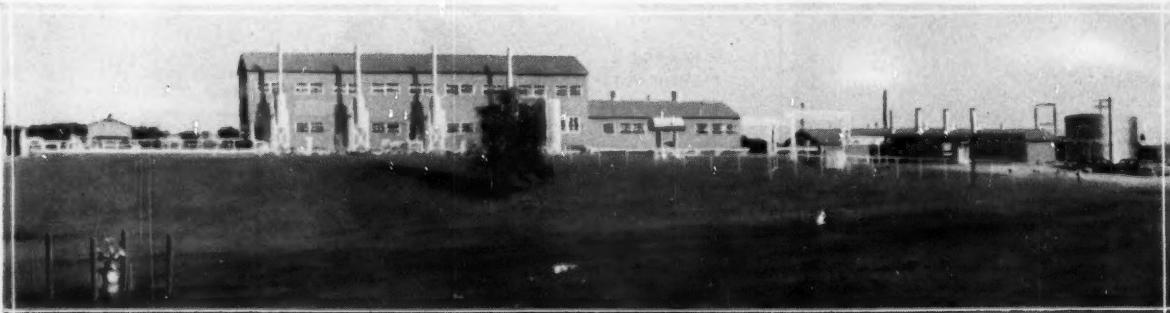
The new Washington Gas Light Company storage field is one of a number of high pressure pipe gas storage fields that Stone & Webster Engineering Corporation has designed and built for its clients.

The Corporation has also designed and built gas compressor stations, and has made studies for clients on peak shaving problems involving catalytic reforming of hydrocarbons, natural gas liquefaction and other processes. This broad experience is available to the gas industry.

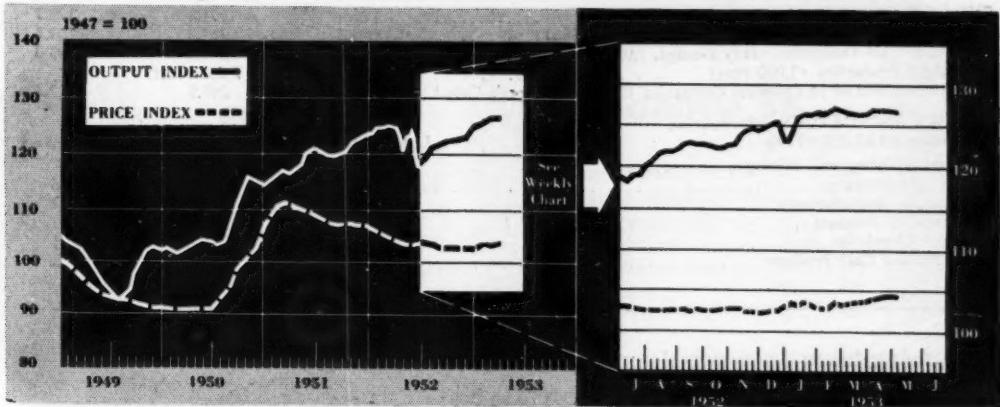


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MARKETS . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

What effect would a steel strike have on the chemical marketplace this year? Chemical producers and consumers are asking themselves that question as steel collective bargaining sessions get under way this week.

Any cessation of concomitant coke-oven operations of the steel industry would play more havoc with chemical supply/demand this year than during 1952's long-drawn out strike. Here's why: At that time while most of the coke-oven products were moving steadily, demand for some—especially among the tar acids, light oils—was definitely "softish."

For example, despite concern that benzol users would be hurt, it is a fact that very few big customers found it necessary to turn to petrochemical benzene producers for relief.

This year the picture has a different tint. Although some benzol makers report a few order cancellations, most are selling the material as fast as it's made.

And a two-way squeeze is pinching toluol supply; on the one side is bustling industrial finishes (paints, lacquers) demand; on the other, increased toluol siphoning by the government for vital TNT, avgas.

But there's one bright spot in the upcoming steel hassle. The President has privately—and publicly—avowed he would not tolerate any industry-wide stoppages that would hobble measures.

Toluene production is being tied in with the country's protective efforts in more ways than one. At the moment the government is taking—via directives—about 60-65% of the coal-derived material and about 70% of the entire petro-toluene output.

Many toluene makers (and users) are hoping the take will be eased when government requirements for the immediate future are made known.

But here's a safe bet: despite industry optimism, chances are the government's needs for toluene will not slacken. Indeed, that 70% now

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.5	126.5	123.3
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.2	104.3	103.1
Bituminous Coal Production (daily average, 1,000 tons)	1,458.0	1,508.0	1,743.0
Steel Ingot Production (1,000 tons)	2,266.0 (est)	2,259.0 (act)	
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	251.2	247.9	229.2

MONTHLY INDICATORS—Production (Index 1935-39=100)

	Latest Month	Preceding Month	Year Ago
All Manufacturing and Mining	239	236	217
Durable Manufactures	325	319	283
Non-durable Manufactures	196	194	184
All Chemical Products	319	314	298
Industrial Chemicals	604	597	563
Petroleum and Coal Products	288	293	278

being taken from petroleum facilities may well be upped to nearly 90%.

On the other hand, pesticide users have nothing to worry about—at least not this year. Large carryover of supplies from last year assures enough to meet farmers' 1953 requirements, says the Department of Agriculture.

Prices are relatively low, but holding firm. DDT is pegged at 23¢/lb. (c.l. works), BHC at something under 1¢/gamma unit.

Overall sales of insecticides, at the moment, are "middlin' to good," say makers, with prospects for the next few weeks leaning away from the "middlin'," more toward the "good."

Industrial chemical prices continue on an upward trend. And the push behind the current hikes continues to be attributed to the profit-destroying squeeze between former "controlled" ceiling prices and unfettered, mounting manufacturing costs.

Borax, boric acid tags are the latest to be altered with the same economic apology being extended by producers. Friday of this week boron product users will pay about \$2.50/ton more for bulk material (c.l. works); an additional \$3.50/ton for the bagged.

And the end is not in sight. July 1 has been set by at least one major producer as the effective date for new sodium silicate schedules. The advances range from \$2 to \$5/ton, with the lower applying to 40-41 degree Baume and the higher figure to solid silicate in bulk.

Some agricultural customers will also be shelling out more for nitrogen solutions after July 1. On that date one important producer will up his prices to \$128/net ton of nitrogen (f.o.b., Hopewell, Va., or South Point, O.).

Though it hasn't happened yet, trade talk has it that sulfuric schedules will soon be boosted—probably within the next few weeks. The increases will certainly not be unexpected; they've been predicted by market observers since sulfur prices went up (CW Market Letter, Apr. 4).

At the moment, sulfuric stocks, though not excessive, are sufficient to meet most customers' requirements. Currently, price of the 60-degree material is hovering around the \$16.30/ton (tanks, works) level.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 11, 1953

UP	Change	New Price	UP	Change	New Price
Diglycol laurate, drms.	\$.0375	\$.335	Sodium cyanide flakes, drms, c.l.01	.178
Tin chloride, stannous anhyd. drms.93	.915	Trichlorethylene, drms., c.l., wks., frt. equald.0025	.1125

All prices per pound unless quantity is stated.

GROCO 30

Titre	33°	36°C
Color Lovibond 5 1/4" Red..	5	10
Color Lovibond 5 1/4" Yellow	30	50
Unsaponifiable	2.0% max.	
Saponification Value	200	204
Acid Value	199	203
Iodine Value (WIJS).....	95	110

GROCO 35

Titre	36°	39°C
Color Lovibond 5 1/4" Red.1.0	1.0	2.0
Color Lovibond 5 1/4" Yellow.5	5	15
Color Gardner 1933.....	1	3
Unsaponifiable	1.5% max.	
Saponification Value	201	206
Acid Value	200	205
Iodine Value (WIJS).....	90	100

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MARKETS . . .

Synthetic's Lead Lengthens

Entry of Celanese into synthetic n-butanol field adds another major supply source for this important solvent.

Fermentation butanol makers, already following the synthetic price line, will continue to play a minor production role.

Resurgent lacquer requirements, growing resin needs, more competitive pricing highlight present n-butanol picture.

With the recent opening of Celanese's synthetic butanol plant at Bishop, Tex., the noose on fermentation n-butanol draws tighter. The struggle between synthetic and fermentation butanol in many ways parallels the fight between these two methods (*CW, Nov. 15*) for the production of ethyl alcohol.

Notwithstanding the many comparisons between them, there are important differences in the conditions surrounding ethanol and butanol.

For instance:

- Whereas ethanol demand swings

pattern from war- to peacetime operations, the synthetic material has made inroads at the direct expense of the fermentation product.

For the synthetic butanol makers, secure with their steady, low material costs, have been able to produce at a high output/capacity ratio.

- Carbide and Carbon, far and away the dominant synthetic butanol producer, has probably operated its several plants at close to capacity over the past several years.

- Tennessee Eastman, the other principal synthetic producer until the

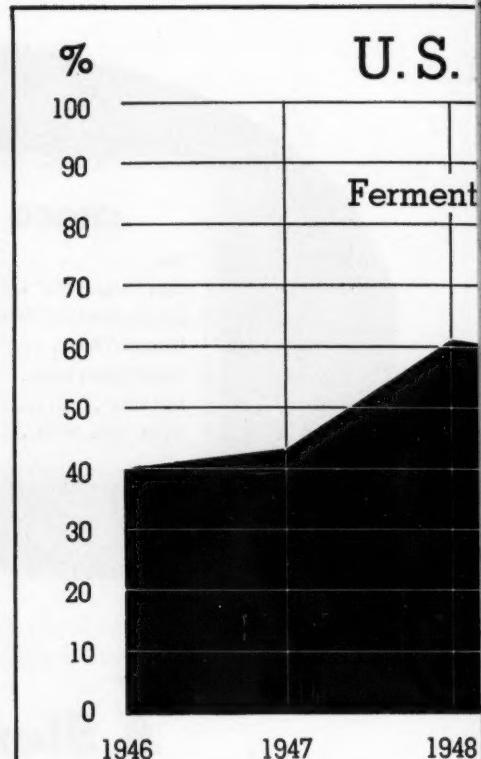


Table I—Estimated n-Butanol End Use Pattern

Per Cent of Total Consumption

Use	1944	1946	1953
Butyl acetate	33	48	35
Lacquers	16	23	16
Dibutyl phthalate	20	6	10
Other plasticisers	0.3	1	4
"Butylated" urea and melamine resins	2.7	5	10
Other chemical uses	12	8	16
Miscellaneous uses	16	9	9

widely with changes in political atmosphere (e.g., synthetic rubber) butanol demand is relatively unaffected by national politics or international tensions.

• Whereas normal ethanol consumption has risen continuously and will likely continue its pattern of growth, butanol consumption has been merely steady, almost stagnant.

Viewed in the light of dips and rises experienced by the general economy, few important commodities can claim a history as stable as that of butanol. Over the past few years, total production has varied as shown in Table II.

It is precisely this tantalizingly constant demand that writes the future of fermentation butanol in terms of synthetic production. And throughout this last decade, with its changing

opening of Celanese's plant, appears to maintain an almost constant output level. TE's output is reported to be entirely for captive use, however.

In sharp contrast with the satisfactory rate of production maintained by the synthetic manufacturers, the fermentation operation has fallen with virtually no periods of relief over the past 10 years. With an estimated annual capacity well in excess of 100 million lbs., the fermenters have watched their market shrink from over 100 million lbs. in 1944 to perhaps a third as much today.

Price Key: Fermentation butanol demand has suffered from the same handicap as has ethanol. It's been priced out of the market because of high raw material costs.

A quick glance at synthetic fermenta-

tion prices over the past few years tells the story:

	n-Butanol Prices (beginning of year)	
	Synthetic	Fermentation (price per pound)
1950	\$0.175	\$0.305
1951	.175	.28
1952	.182	.182
1953	.13	.13

Fermenters' raw materials, both corn and molasses, have varied all over the price map. Right now, with corn at a cheap \$1.60/bu. the principal fermenter using it can probably net a fair profit—with the help, of course, of about 70¢ worth of coproduct ethanol and 30¢ of acetone from each bushel of corn.

The molasses users, tied to such a mercurially-priced raw material, have had a precarious existence. Back in 1948, throttled by a molasses price that soared to 37¢/gal., the fermenters lost their majority hold on butanol. They never regained control.

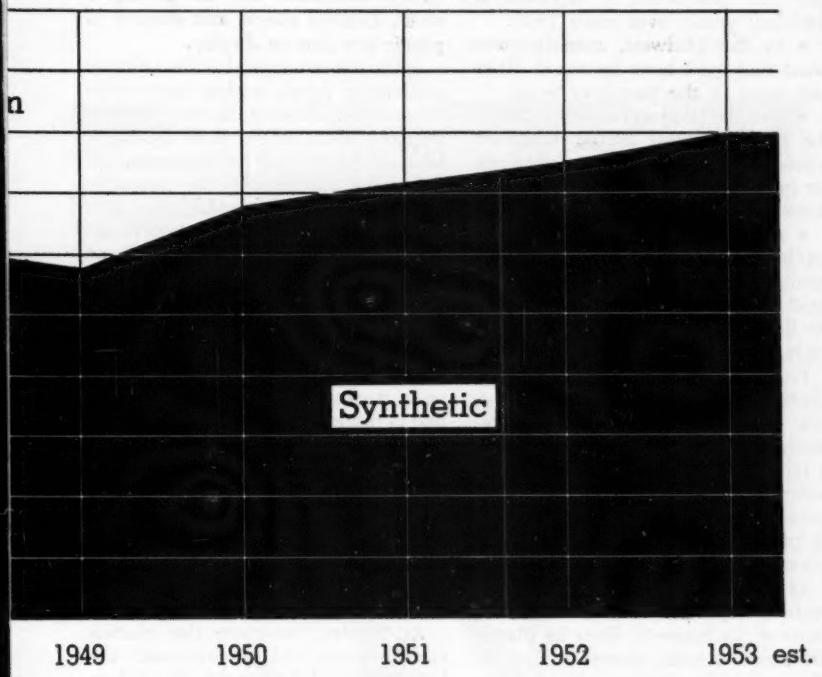
Cost-wise, their big chance came in 1949 when molasses skidded to

Table II—U.S.

	1944	1945
Synthetic*	38	45
Fermentation*	112	84
Total	150	129

* Estimated breakdown of actual (excepting 1953)

n-Butanol Production



4¢/gal. But that same year, business went into a slump, demand for butanol sagged.

And when general business activity perked up again, molasses tags, marked up to 26¢ in 1951 and to 33¢ in 1952, weakened the fermenters' position still further. Final acknowledgment of this state of affairs came early last year. Precipitated by an easing butanol demand, the fermenters dropped their price into line with the synthetic material, high-cost molasses notwithstanding.

Current molasses prices, in the 5-10¢ range, probably bring the fermenters a fair profit. For at today's prices, a gallon of molasses yields about 20¢ worth of butanol plus a nickel's worth of acetone.

As a sidelight, fermenters may find disposing of their co-product acetone more difficult a year or two hence. The new phenol-from-cumene plants (*CW, May 2*) are expected to add roughly 50 million lbs./year (about

10% of all acetone) to the already adequate supply.

Pattern Shifts: Despite the narrow limits bounding the total butanol consumption, the individual end uses have shifted. This changing pattern is pointed up in the three years selected for Table I.

The usage for the year 1944, typically wartime, could swing that way again if international politics so dictated.

The major adjustments from 1944 to peace year 1946 appear to be due to (1) a drop off of dibutyl phthalate plasticizer for powder production and (2) a spurt in lacquer.

From 1946 until now, dibutyl phthalate has made modest but steady gains, thanks in part to increased powder needs and in part to stepped-up consumption by the lacquer makers.

Best Customer: Number-one taker of butanol in one form or other is, of course, the lacquer industry.

Over the past 10 years and longer, predictions of the waning popularity of lacquers have popped up periodically. One such occasion was the switch away from lacquer finishes by two of the larger auto makers some years ago.

But for an industry "counted out" numerous times, the lacquers show remarkable vitality. Far from declining, sales continue to move ahead, almost regularly, year to year. Looking back, the figures run like this:

Industrial Lacquer Sales

(Millions of Dollars)

1943	63
1944	66
1945	65
1946	75
1947	89
1948	91
1949	80
1950	112
1951	115
1952	104 (est.)

Recent activity in the auto and furniture industries indicates that 1953 lacquer consumption may reach, if not exceed, the 1951 high.

As and lacquers go, so fares butanol. For adding up (1) direct solvent, (2) butyl acetate and (3) plasticizer uses, one estimate pegs present usage of butanol by the lacquer industry at 60% of the entire consumption.

Another Lift: Last September, butanol, in the form of the acetate, received an indirect advantage that may boost it to even more favorable positions as a lacquer ingredient. For some time previously, the chief rival solvent, methyl isobutyl ketone (MIBK), had been priced about 2¢/lb. lower than butyl acetate. Each time the butyl acetate tag was marked down, the price of MIBK was reduced.

But the latest reduction in butyl acetate failed to elicit a corresponding drop in MIBK price. Result: now, all things being equal, chances are lacquer formulators will favor sweet-smelling butyl acetate over the more pungent MIBK.

Other Hopes: Butanol producers have been eyeing the growth of other outlets. In particular, butylated urea and melamine resin production has now swelled to about 400% to 1944 usage, and the popularity of these modified resins appears to be still climbing fast.

Firm Future: Looking ahead, the n-butanol price path appears to be smoothing out. No longer buffeted by fluctuating raw materials costs, future tags on butanol bid fair to match the steadiness of its demand.

The synthetic producers, bent on establishing firm sources of supply, now appear to have a solid grip on this basic industrial solvent.

n-Butanol Output 1944-1953

(Millions of Pounds)

1946	1947	1948	1949	1950	1951	1952	1953
51	60	86	70	100	110	87	120
75	80	54	50	47	43	29	30
126	140	140	120	147	153	116	150
totals.							

Impulse Boosters

Impulse buying, that field of sales appeal now being so assiduously cultivated, is forcing the growth of a new plastics market. The rigid plastics container industry, child of modern merchandising, is quietly swallowing whole packaging lines.

Any article that can be more attractively displayed in a plastic box is fair game. From fishing tackle to pharmaceuticals, seafood to sewing needles—wherever an item may have high impulse sales potential, distributors are demanding more and more plastic containers for it.

Housewives, too, are taking a fancy to rigid plastic containers. They're storing left-overs in convenient-size transparent polystyrene boxes in the family refrigerator; they're packing 25- and 30-oz. polyethylene containers of food into low-temperature freezers.

Because molders do not usually devote themselves exclusively to the molding of rigid plastic containers, it's virtually impossible to determine the size of the industry *per se*. But this much of the growth pattern is evident: rigid plastic container production is moving in high gear.

Although taken country-wide, specific applications differ, reports of this sprouting field pretty much tally.

- In San Francisco, rigid plastic container production is reported as doubling yearly ever since 1945.

- In the Midwest, manufacturers boast that sales have increased 500% and more in the past four years.

- Despite production limitations in the North Central States, hardware wholesalers say that plastic containers for household use are moving at ten times the 1947 volume.

- And, looking ahead, one of the leading polystyrene manufacturers predicted that the use of polystyrene rigid plastic containers would increase by five- to tenfold in the next five years.

For merchandisers, key to the rigid plastics popularity is eye appeal. A new transparent ice cream pail recently introduced on the West Coast is typical. Capitalizing on the mouth-watering color and texture of its contents, the packer claims he can charge 5¢/pint more for his product, sell twice as much of it.

As another example: a large Midwestern department store finds that some of its cosmetic lines in plastic containers outsold those packed in other types of containers, although the selling price was as much as 25% higher.

This same rigid plastic packaging is rocketing sales in other lines. Jew-

elry, playing cards, sporting goods, candy, hardware are all getting a whirl. Cottage cheese and seafood in plastic are also on display.

Although eye appeal is the primary motivating force, packers cite other advantages. Among these: cheaper shipping costs, longer shelf life, flexibility of design and low breakage. Reuse of the container by the consumer is also being emphasized.

Today's rigid plastic containers are not above reproach, to be sure. Some common complaints: soft, easily scratched surfaces; fragile lids and hinges; liquid seepage. But molders say these faults no longer exist.

Right now, many merchandisers are on a packaging springboard. They'd like to plunge into the spectacular display lines offered by rigid plastic containers; but the cold economic fact of meeting competitive prices is holding them back. Apparently unconvinced that low price articles such as ice cream can bear the cost of "fancy" plastic boxes, they're maintaining a wait-and-see attitude.

At present, however, the plastics manufacturers and molders aren't the least bit worried over this skepticism. Their big problem is to keep pace with the growing but ever-changing demands of the expanding packaging field.



Plastics for Defense

MILITARY PLANNERS, bent on exploiting any advantage afforded by new or substitute materials, are paying reinforced plastics close attention. At Naval Ordnance Laboratory, White Oak, Md., Senior Project Engineer F. Robert Barnet (*top, right*) supervises molding of plastic hemisphere. At right, glass fiber and plastic are being

mixed prior to molding. Currently, more than 125 separate military items are being fabricated from reinforced plastic. Military designers, aware of future lightweight and mass-production requirements and alert to possible resource pinches, are turning to plastics in their search for better answers to problems of defense.



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SPECIALTIES . . .



GOOD HOUSEKEEPING TIP: A brake on the instant cleaner boom?

A Rub with Instant Cleaners

"Chances are they'll harm your silver." That's the sombre tone of a recent article in *Good Housekeeping* magazine on dip-type silver cleaners.

This compounds woes of the cleaner makers, currently troubled with patent worries—but they're still able to sell products at a million-a-month clip.

Watch Out! With an exclamation point. An exclamation point in red. Watch out for the new liquid silver cleaners. With this heading, on a prominently displayed article, May *Good Housekeeping* magazine ripped into makers of dip-type silver cleaners.

Specific charges in the article:

- Repeated use of the instant cleaners will result in removal of the oxidized, pattern-defining black deposit, replace it with a white powder.
- Continued use results in a dull, yellowed silver without lustre—lustre that can sometimes be restored only by returning the silver to the manufacturer, G-H declares.
- The cleaners damage stainless steel—in knife blades, sinktops, etc.—

as well as porcelain-enamel, linoleum, and plastic counter tops.

Surprise Package: Caught completely unaware by the article, stunned by what many termed the "unreasonableness" of the attack, producers of these silver cleaners have been slow to register much more than surprise.

Perhaps as mild a comment as any was one by a maker of silver polishes—dip cleaners and paste polishes—who pointed out that nearly all the liquids are listed as cleaners, not polishes, and that the limitations are plainly spelled out in the directions.

He went on to say, "This claim that it might be necessary to return the silver to the manufacturer is simply without foundation."

Other firms termed the G-H claim

about extensive damage as "nonsense," "unfair," and "they've gone too far." That *Good Housekeeping* overplayed the dangers and probabilities of damage necessitating return of the silver to the factory for refinishing is evidenced by the record the cleaners have established. One firm, which has sold well over a million bottles of its cleaner, reports a total of two complaints that the product worked unsatisfactorily or damaged the finish.

Smithy's Stand: But rather than depend entirely on how makers of the cleaners regarded the article, *CHEMICAL WEEK* checked with several leading silversmiths to learn their reactions to the story.* Their comment scarcely supported the *Good Housekeeping* tirade.

Like the cleaner makers, apparently, none of the four firms consulted had advance knowledge of the article. One seemed in thorough agreement with the article; others appeared lukewarm in support of it.

Of the returned silver said to be damaged by dip cleaners, none of the firms was willing to state precisely how much was returned because of cleaner misuses, and none could say how much came back because the surface was yellowed beyond the refinishing ability of home polishes.

In fact, only one firm said it had any returns on the "finish yellowed" cause. All were pretty much in agreement, however, that because housewives seldom read directions, there have been many cases of damaged stainless knife blades—blades that must be buffed to remove pits. And at least one silversmith now includes a warning that its warranty does not hold when the dip cleaners have been used.

Nothing New: The charges the magazine makes are in no wise new to the cleaner makers. To avoid loss of the oxidized silver in recessed designs, many makers have advised use of the cleaner on a soft cloth, to be rubbed over the pattern. And, as York Research Corp. points out, the complaint about removal of oxidized silver can also be laid to the widely employed system of silver cleaning where the ware is put in a aluminum pan with a water solution of a sodium tripotassium phosphate detergent, and heated.

York, which tested the liquids for the American Hotel Assn., as well as for *Reader's Digest*, brings out that polishes, all of them, involve the use of an abrasive, which will eventually wear down silver. And because silver becomes lightly scratched in use, it is generally necessary to polish the sur-

* Gorham Mfg. Co. (Providence, R.I.); International Silver Co. (Meriden, Conn.); Oneida Ltd. (Oneida, N.Y.); Towle Mfg. Co. (Newburyport, Mass.).

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SPECIALTIES

faces from time to time with abrasive polish.

About the damage to sink tops and the like, there is no question that the mildly acidic cleaners can do damage if left on the surfaces for a considerable length of time. But the acidity is hardly more than that of a cut lemon, and no careful housewife leaves a lemon where it can hurt drainboard or sink.

Patent Problem: But it hasn't been *Good Housekeeping* alone that has made things tough for many of the makers of the dip cleaners. Last Feb. 10, a patent (U.S. 2,628,199) was granted to Frederick Lowenheim, Plainfield, N.J., relating to a silver and copper cleaner containing thiourea. Lowenstein, who applied for the patent in 1950, on a process he had run across in other research, sold patent rights to the International Industries and Developments, Inc. (New York).

Lewal Industries and its associated companies licensed under the patent. Shortly afterward, hundreds of merchandisers of all brands of instant cleaners received letters warning them that makers and sellers of thiourea-containing cleaners not licensed by International Industries and Developments might be liable to prosecution.

One result was uncertainty on the part of many distributors. Most of the nonlicensees feel that their formulations are not covered by the patent (Lowenheim, original holder of the patent, expressed no opinion as to whether his patent was applicable to present dip cleaner formulations); one (G. N. Coughlan, W. Orange, N.J.) has sued International for damaging its business.

Troubled Span: In the short time since their introduction, the dip cleaners have had a varied reception. It seemed favorable at first, with the hotel association approval, "recommendations" from *Parents* magazine, *Reader's Digest*, and York Research. But the peak has been reached and passed.

There is no doubt that the article in G-H could slow down cleaner sales. It is not impossible, however, that some firms will eventually secure the *Good Housekeeping* seal,* covering products advertised in G-H. But until then, makers of the cleaner hope that *Parents* and *R-D* approval outweighs the disfavor of *Good Housekeeping*, and that the products will be judged on merit alone.

*The magazine had, earlier this year, condemned cleaning compounds containing chlorinated hydrocarbons. Nonetheless, maker of the rug cleaner Glamorene, which contains such a compound, was able to get the G-H seal.



PULSE-JET FOGGER: For fast cabbage de-bugging, an insecticide mist.

Impulse Killer

Bugs'll be buzz-bombed this year, if the new insecticide fogging device being introduced in this country by Devenco, Inc. (N.Y.) takes hold as distributors hope.

The new insecticide dispersing machine, called Swingfog, is a portable (weight about 30 lbs.) unit that can be carried and operated by one man,

and is claimed to fog two acres in 20 minutes. Currently, Devenco is importing the unit from Germany; it sells in New York for about \$320.

Principle of the machine is that of the German pulse-jet engines, which powered V-1s in World War II. Fuel-air mixture drawn into the combustion chamber is ignited (by a glow-plug, at the start). The first explosions send out a series of pressure

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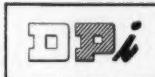


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SPECIALTIES . . .

waves, likened to ripples caused by dropping a stone into a pond.

Between the pressure pulsations, however, are periods of reduced pressures. And during these low-pressure phases, air (through a nonreturn valve) and fuel (through a carburetor) are sucked into the chamber. The immediately following pressure pulse, combined with the heat of the chamber, results in a fuel-air mixture compressed to the ignition point—and another explosion. The glow-plug is not a requisite after the unit has begun operation; it runs evenly at about 80 explosions per second.

Pipe Stem: In the elongated exhaust pipe of the machine—it is about five feet long—the insecticide is injected, and then immediately vaporized and ejected by the intensely hot blast. Particle size of the vapor can be regulated within limits (mean size is about 6-7 microns; size runs from .80 to 25 microns). The small size enables the insecticide particles to remain suspended in the air for long periods.

Output is about 35,000 cu. ft. of fog per five minutes. Fuel tank, holding about 1.2 qts., will operate the unit an hour; the insecticide carrier holds 4.7 quarts, is enough for half an hour. Oil-based forms of DDT, lindane, toxaphene, and other insecticides may be used.

Devenco has a number of other units employing the pulse-jet principle. These include Swingheaters, to supply pre-starting heat to internal combustion engines, and Swingburner, a field heating unit. The Swingfog can also be used as a burning unit—by replacing the insecticide with gasoline—to burn brush, melt frost, and do jobs of similar nature.

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Giving high school youths real experience in business practices—that's the objective of the current (May 11-16) National Junior Achievement week. Sponsored by established adult firms, teen-agers organize their own companies, make and sell their own products. More and more chemical companies are backing such products—and chemical specialties and plastic novelties are among the most popular enterprises.

Already, there are well over 150 J-A firms in the U.S. turning out plastic products, over 80 making specialties like furniture polishes, detergent formulations, and window cleaners. They're small, and don't give regular firms competition, but they bring in profit (generally, although some end up in the red)—and prove to be in-



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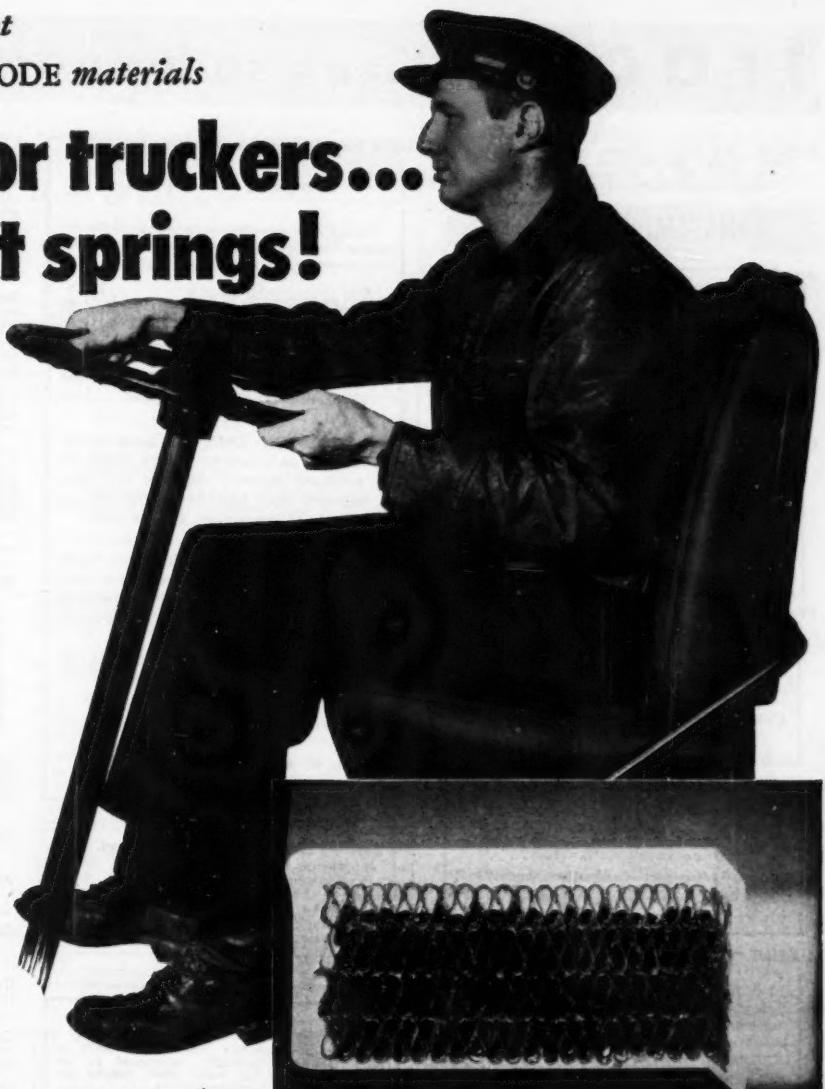
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Glass fiber fishing rods, molded toys and dishes are among the most frequently made plastic products. In the case of the fishing rods, for example, the J-A group molds, assembles, packages, and sells the rods through sports stores.

A typical firm will gross about \$300/year, make a net profit of perhaps \$100. Every successful company stays in business for just one school year. At the end of that time, profits (if any) are paid out in dividends to stockholders and bonuses to company members. A final report, like an industrial annual report, is compiled and mailed to the stockholders.

J-A companies have multiplied in the past 10 years. From about 100 firms in 1942, the number has climbed to over 1,500 in the current school year.

It isn't merely money or experience that the youngsters pick up—it's an in-perspective view of free enterprise.

One for Chicago

Heading for Chicago's Drake Hotel this week are members of the Chemical Specialties Mfg. Assn. The group's 39th midyear meeting is slated for May 17, 18 and 19—executive and committee meetings on Sunday, the 17th, followed by general meetings on the following Monday and Tuesday.

There will be the usual emphasis on symposia. Discussion in the Aerosol section will concern aerosol paints; the Insecticide division has slated a panel on the toxicity of household insecticides; and the Soap and Detergent group will have one on the role of organic builders and additives in soap formulations.

Among the new products to be discussed at the meeting is R. F. Goodrich Chemical Co.'s chlorinated insecticide, Strobane. A dozen or more other papers on matters vital to specialties makers are scheduled for the three-day confab.

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Agency—Batten, Barton, Durstine & Osborn, Inc.		Agency—Ben Sackheim, Inc.	
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Agency—Charles L. Rumrill Co., Inc.		(Classified Advertising)	
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Agency—Tippett, Jackson & Nolan, Inc.			
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SPECIALTIES . . .

Agriculture Organization of the United Nations met last week in Rome to discuss steps to be taken in the coming year against the locust plagues of the Mediterranean area. In the past two years, U.S. aid, as well as that of other nations, in the form of insecticides and the planes to disperse them, has helped materially in cutting the damage due to the locust hordes in the Middle East. At the present time, the bugs are already swarming in certain areas, but have not yet gotten out of control. The recent confab was to set up plans in case the swarms should reach plague proportions.

Glucose Getter: The enzyme system, glucose oxidase and catalase, is now available in an all-soluble, powdered form in commercial quantities from Takamine Laboratory, Inc. (Clifton, N.J.) under the tradenames DeeO and DeeGee. The enzymes are used to remove glucose from eggs prior to drying; Takamine also suggests that the products be employed to eliminate browning in foods due to the "Mailard-type" reactions.

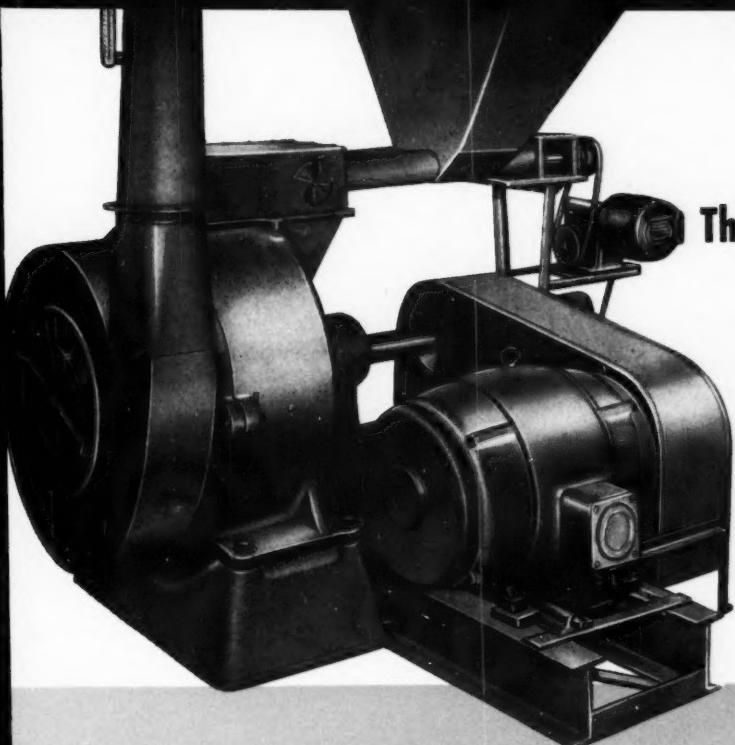
Sludge Remover: Coopers Creek Chemical Corp. (West Conshohocken, Pa.) is introducing a new septic tank cleaner and conditioner. A free-flowing powder, it is said to operate by stimulating growth of the bacteria that destroys sludge in sewerage systems. It will be retailed in quart and drum lots; quart-size sells for \$1.

Not Even a Crust: Wilson Organic Chemicals, Inc., is now selling a special form of its sodium polyacrylate soil conditioner, Poly-Ack #15, for prevention of soil crusting. Crop row application is recommended.

More Floors: Givaudan Corp. (New York) has added two new floors to its plant in Delawanna, N.J., to house executive offices as well as research laboratories and the engineering department.

Frosting: A coating for polystyrene and acrylic plastics, to produce a frosted effect, has been worked out by Logo, Inc., a subsidiary of Bee Chemical Co. (Chicago). Tradename: Logoquont Frost.

Wider Outgo: Merck & Co. (Rahway, N.J.) is now selling its Duo-Strep mixed antibiotic (equal percentages of crystalline dihydrostreptomycin and streptomycin sulfates) through regular distributive channels, on prescription.



The new *Superfine*

SCHUTZ-O'NEILL PULVERIZER

backed by
60 YEARS
of experience

AIR FORCE PULVERIZING—AIR CLASSIFICATION

Here is a proven, automatic and dustless method of pulverizing any grindable material to your desired fineness. For extremely fine grinding and uniform particle size distribution of product, the principle of centrifugal impact with air attrition utilized so efficiently by the Schutz-O'Neill "Superfine" Pulverizer has never been surpassed. The centrifugal force recirculates coarse particles within the mill for regrinding. The air classification carries the fine particles out of mill as uniform product of the desired particle size.

ADAPTABLE TO THE COMPLETE RANGE OF PULVERIZING FROM COARSE TO ULTRA FINE

The ease of grinding and the versatility of the unit are two features not found in any other pulverizer on the market. With proper adjustments, this mill will produce particles from 40 mesh to low micron sizes under conditions that enable you to accurately control not only particle size but also the size distribution in the product. This can be done while maintaining grinding temperatures below 125-130°F. The mill is ordinarily set for fine powdering duty, but if a coarser product is desired, it can be readily obtained by proper adjustment in the grinding and classifying chambers.

COMES APART IN 10 MINUTES, EASY TO CLEAN, ADJUST, REPAIR

Ten minutes is all you need to take apart a Schutz-O'Neill "Superfine" for cleaning, to adjust for fineness, or replace any part. Remove 2 pins and cone housing lifts off. Loosen 1 set screw and 1 nut and all other parts slide right off the center shaft. It is unmatched for accessibility and simple, rugged design.

LET SCHUTZ-O'NEILL GRIND A TEST SAMPLE FOR YOU

Send us a 50 lb. stock sample stating what your material is and fineness desired. You will receive your pulverized stock plus our engineering report giving complete details of process used together with recommended equipment, methods and mill plans.

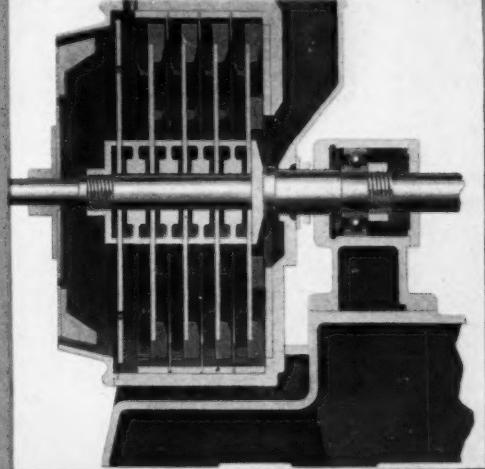
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SALES ENGINEER NEAREST YOU.

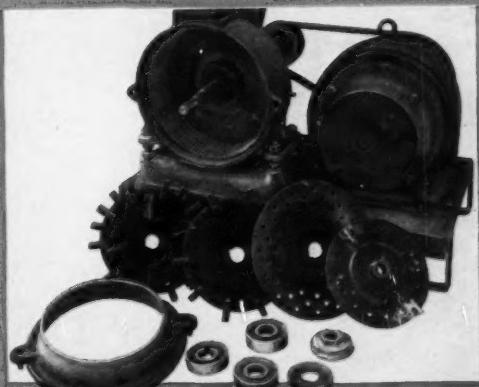


PULVERIZERS - GRANULATORS - ROLLER MILLS - AIR CLASSIFIERS - SIFTERS - HAMMER MILLS

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Cross section of the grinding chamber of our "Superfine" Pulverizer showing from left to right the cone plate, perforated mill plate and 4 breaker plates with multi-section liner divided by shoulder rings.



Here is a disassembled mill. Every part separated and accessible—convenient liners—eased for easy cleaning, exchange or replacement.

Heyden Carriers for Dyeing DACRON*

ACCEPTED BY THE TRADE:

HEYDEN BENZOIC ACID

An increasing number of dyehouses are adopting Heyden's Benzoic Acid as a carrier in the piece dyeing of Dacron*. With this high-quality non-toxic carrier you get the maximum exhaustion and color value from your dyes without adverse effects on light-fastness, wash-fastness, crock-resistance, or hand.



BEING EVALUATED BY THE TRADE:
CLORMATIC #2

Carrier and levelling agent. This new liquid product, which is particularly easy to handle, is not only an excellent carrier but also extremely effective as a levelling agent in the package dyeing of yarn.

CHLORINATED BENZOIC ACIDS

2,4-dichlorobenzoic acid and 3,4-dichlorobenzoic acid are noted for the exceptional dye bath exhaustion which they bring about as carriers even in very low concentrations.

Samples and Technical Data on Request.

*Du Pont's trade-mark for its polyester fiber.

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Glycerophosphates • Guaiacols • Hexamethylenetetramine • Medicinal Colloids • Methylene Disalicylic Acid • Neomycin • Paraformaldehyde
Parahydroxybenzoates • Penicillin • Pentaerythritols • Propyl Gallate • Resorcinol • Salicylates • Salicylic Acid • Streptomycin